

Review of C2 SNPP VIIRS Calibration LUT

- Approach
 - Compare the near-nadir TOA observations, aggregated across 14 desert sites
 - Compare the BRDF Corrected Reflectance from the LSR CMG generated using the C1 and C2 L1B
- Inputs
 - Use the MOD and IMG L1B from the C1 IDPS Mx8 SDRs in AS 5000 and the C2 V3.0 NASA L1B test results from AS 3314. The C6 MODIS Aqua has also been used as an additional reference source.
 - Use C1 and C2 versions VNP09CMG from year 2019 available in AS 5000 and 3314
 - AS 5000 (C1): C1 operational products generated using the L1 produced using the IDPS heritage SDR code and NASA VCST delivered calibration LUT
 - AS 3314: Science test generated an year of global data from year 2019. L1B and Geolocation products generated using the latest C2 NASA L1B calibration code and C2 calibration LUT and C2 geolocation code and LUT. LSR CMG using the C2 LSR stream of PGEs
- Analysis
 - For the TOA analysis, observations within 30 degree of nadir view are chosen and are aggregated across 14 desert sites.
 - LSR CMG is BRDF corrected
 - Time series plot of daily average difference between the C1 and C2 LSR from BELMANIP sites

TOA Comparison

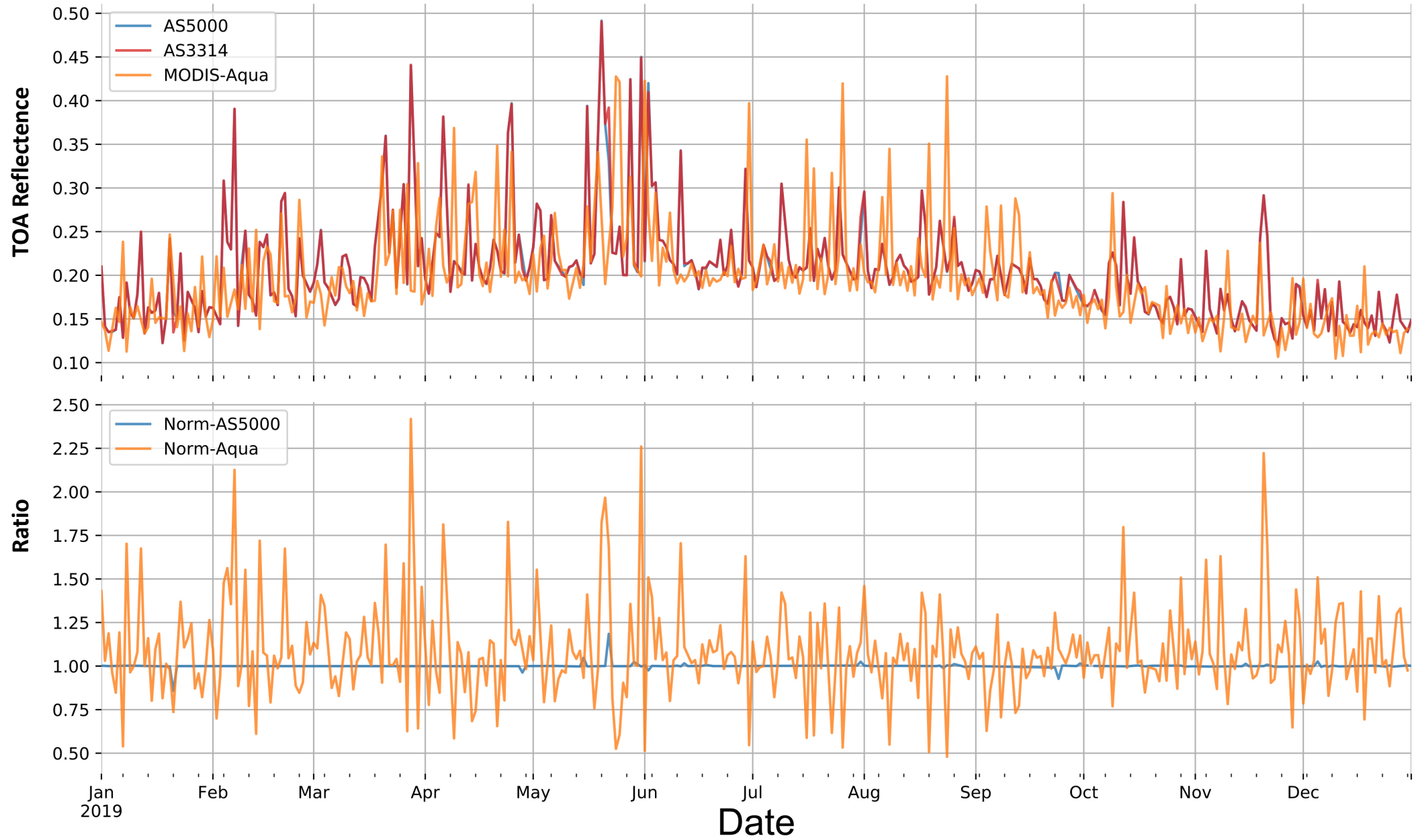
MOD L1B from S-NPP C2 (AS 3314)

Vs

S-NPP C1 (AS 5000)

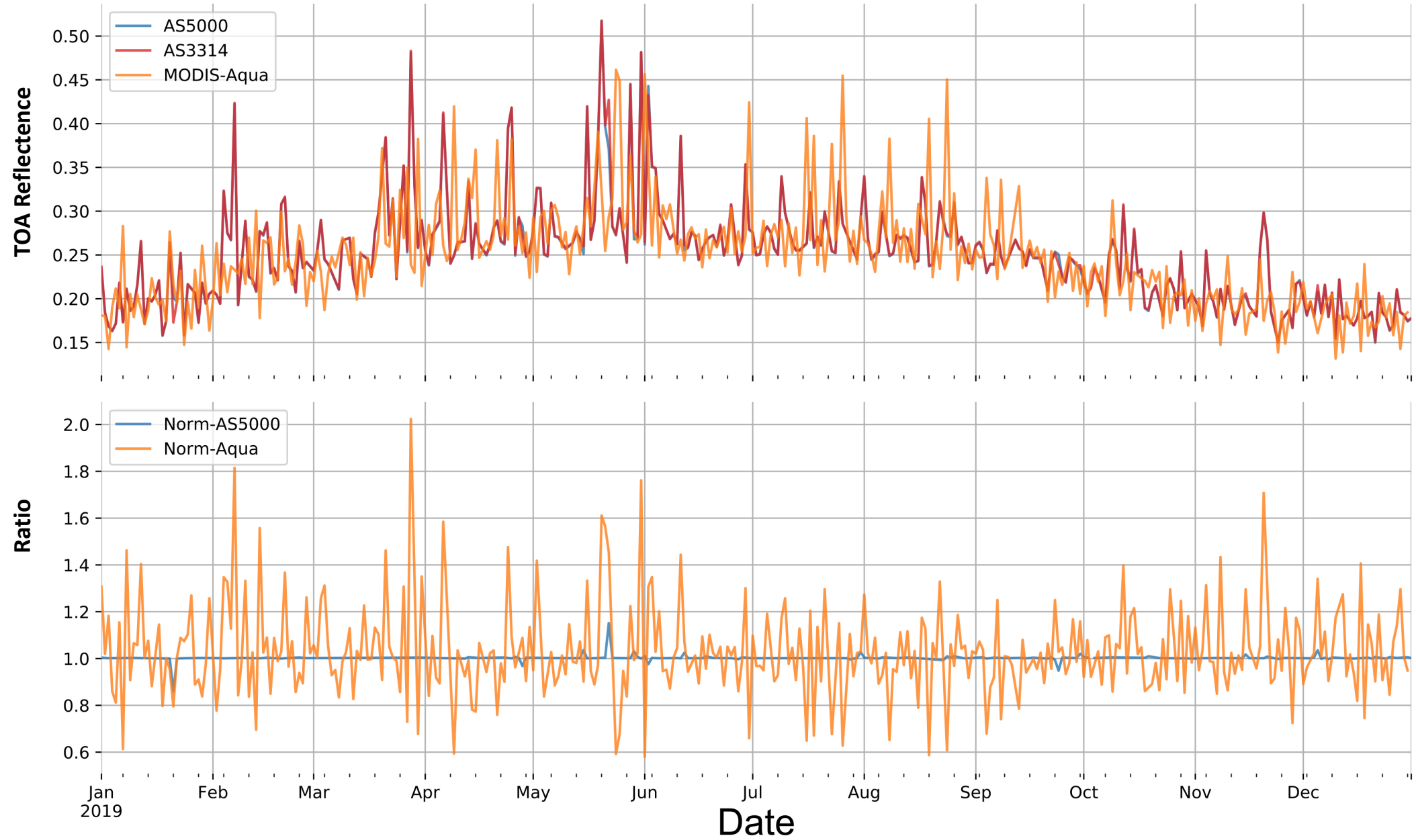
MODIS Aqua (C6)

Band: M3



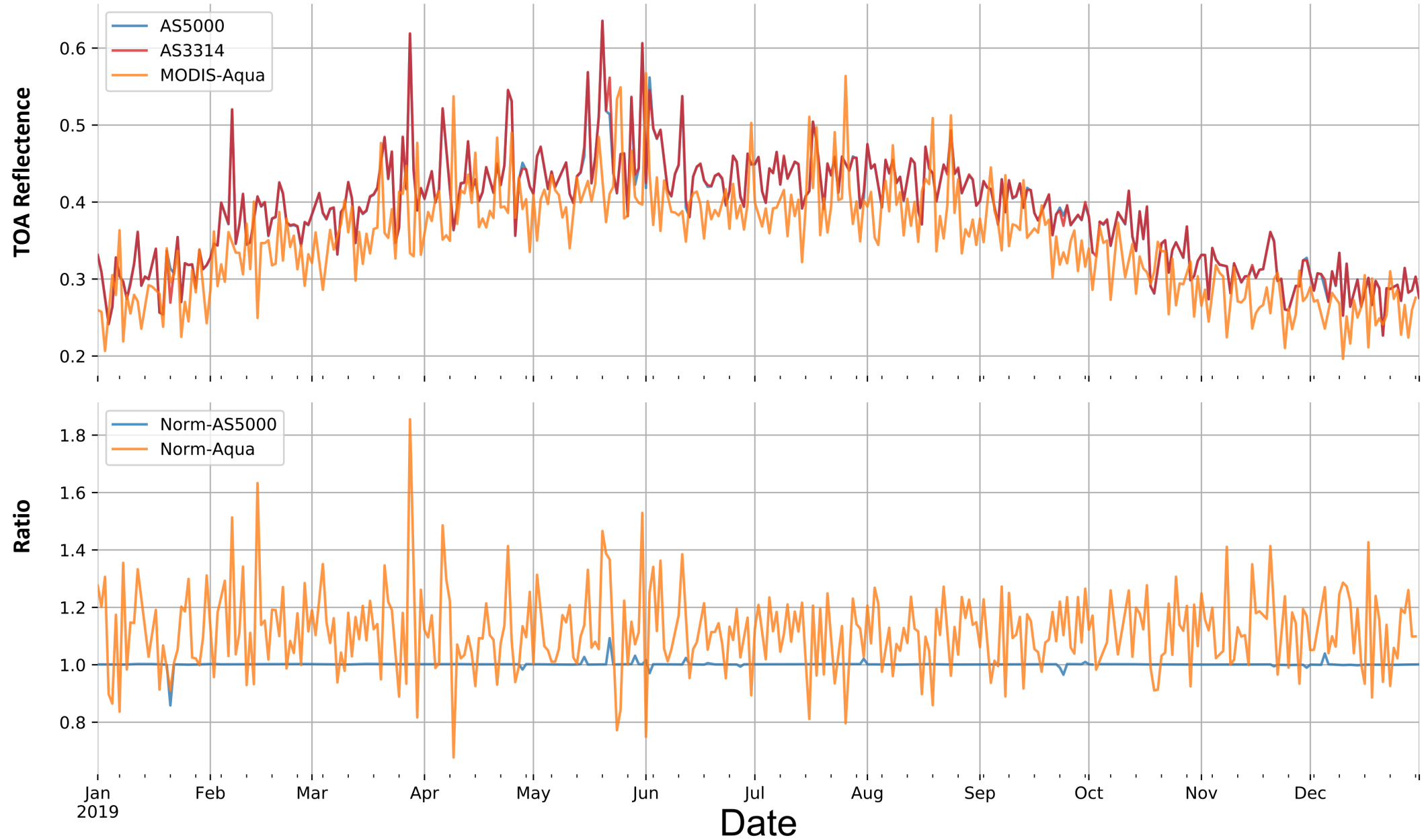
Norm-*** = S-NPP C2 TOA normalized wrt. given baseline

Band: M4



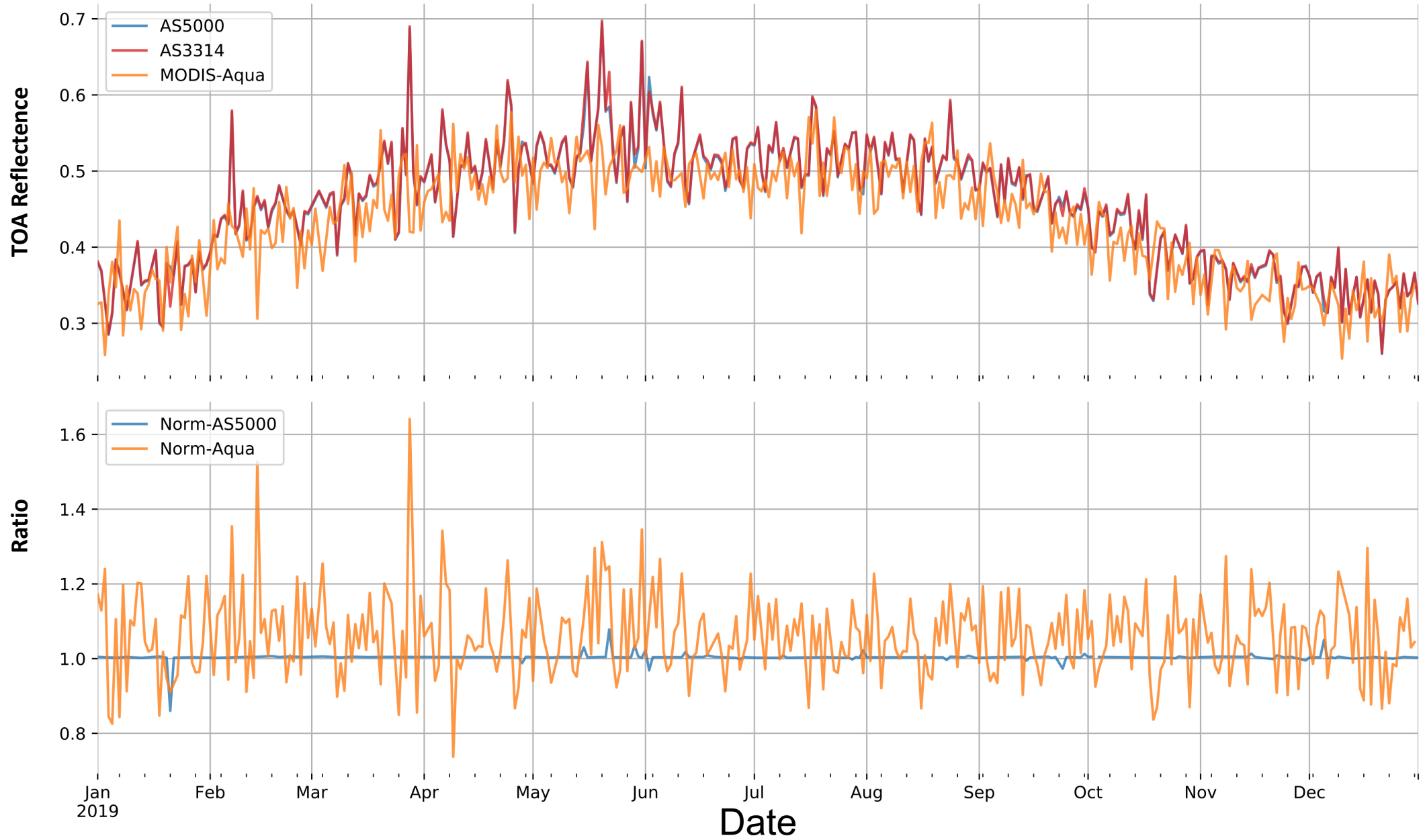
Norm-*** = S-NPP C2 TOA normalized wrt. given baseline

Band: M5



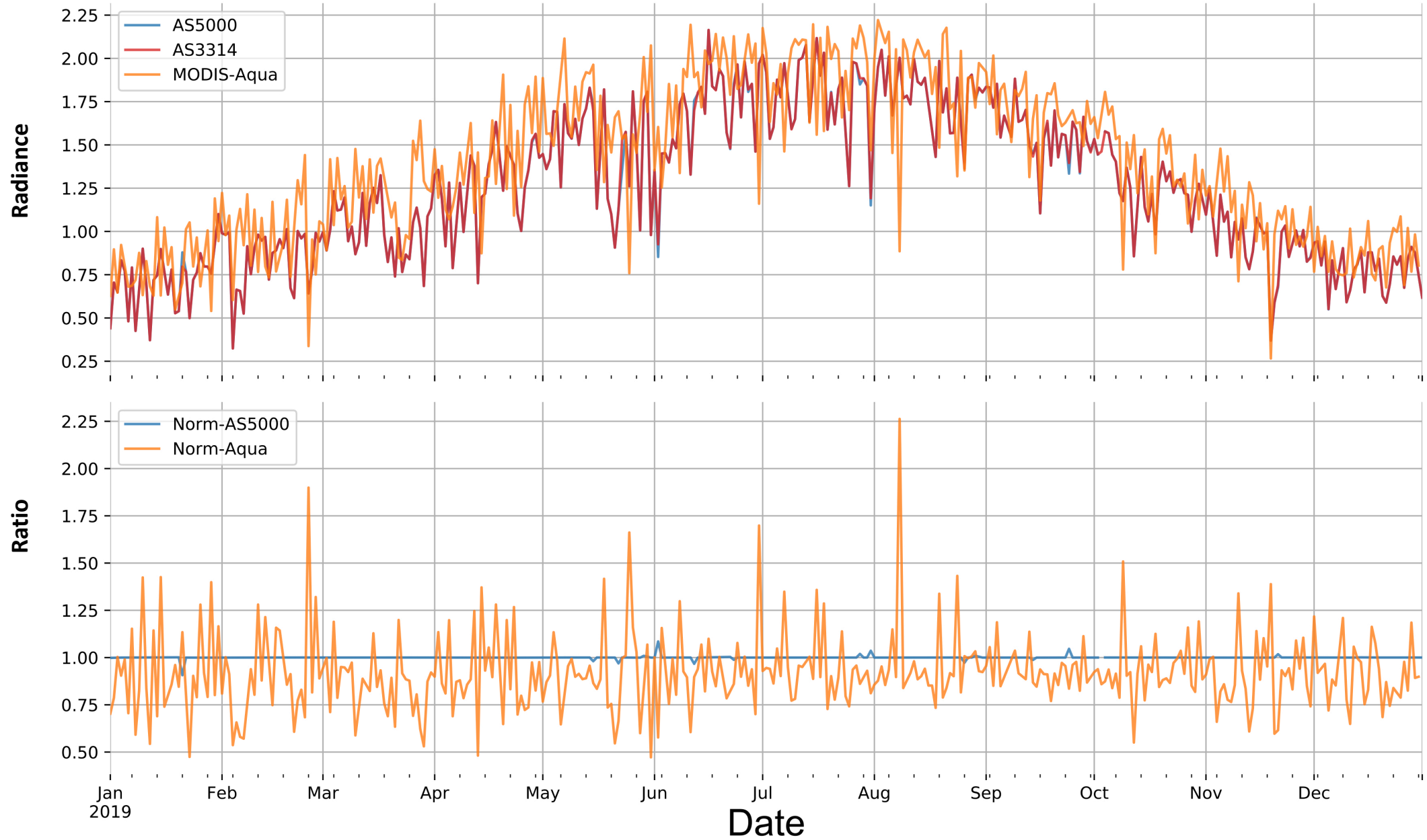
Norm-*** = S-NPP C2 TOA normalized wrt. given baseline

Band: M7



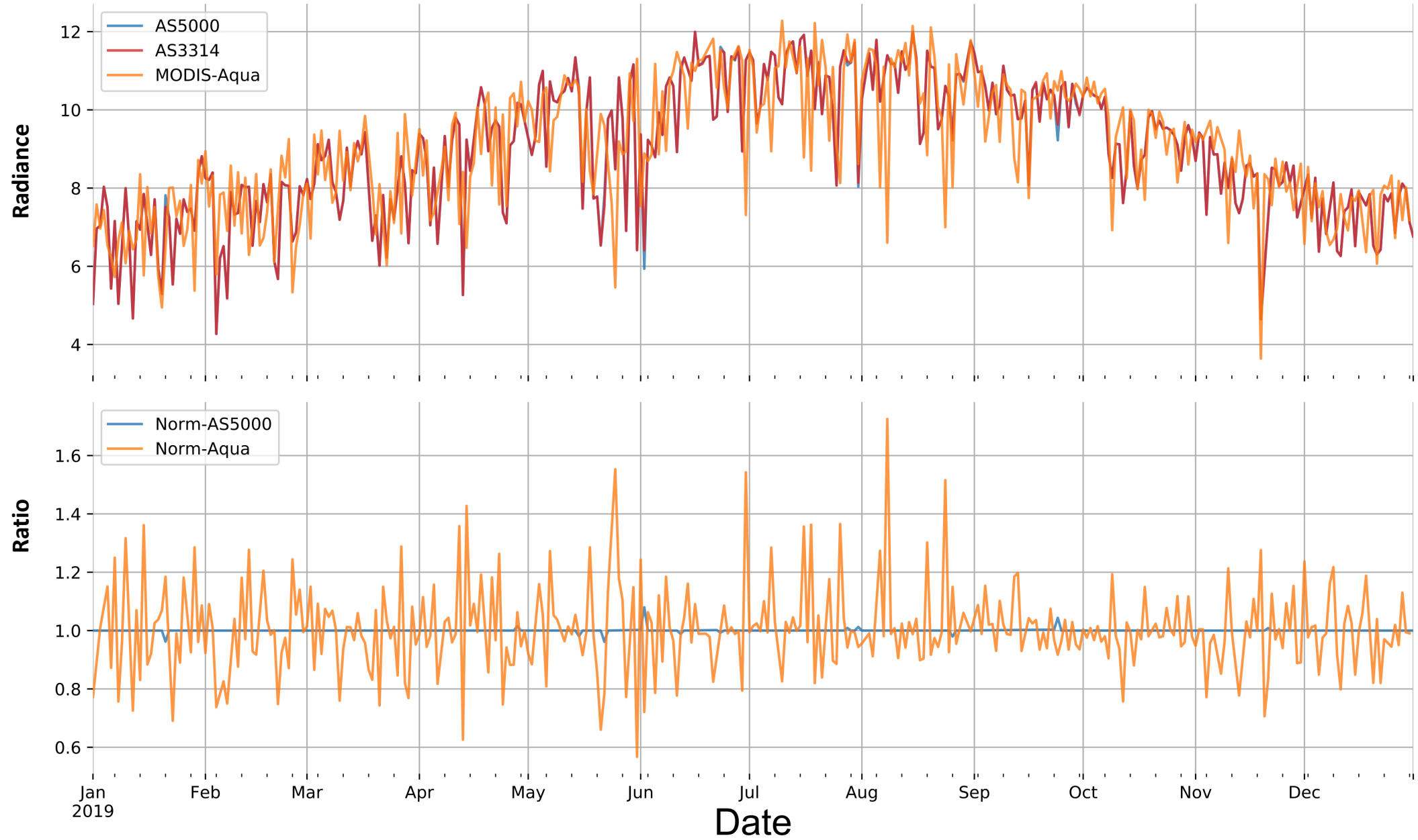
Norm-*** = S-NPP C2 TOA normalized wrt. given baseline

Band: M13



Norm-*** = S-NPP C2 TOA normalized wrt. given baseline

Band: M14



Norm-*** = S-NPP C2 TOA normalized wrt. given baseline

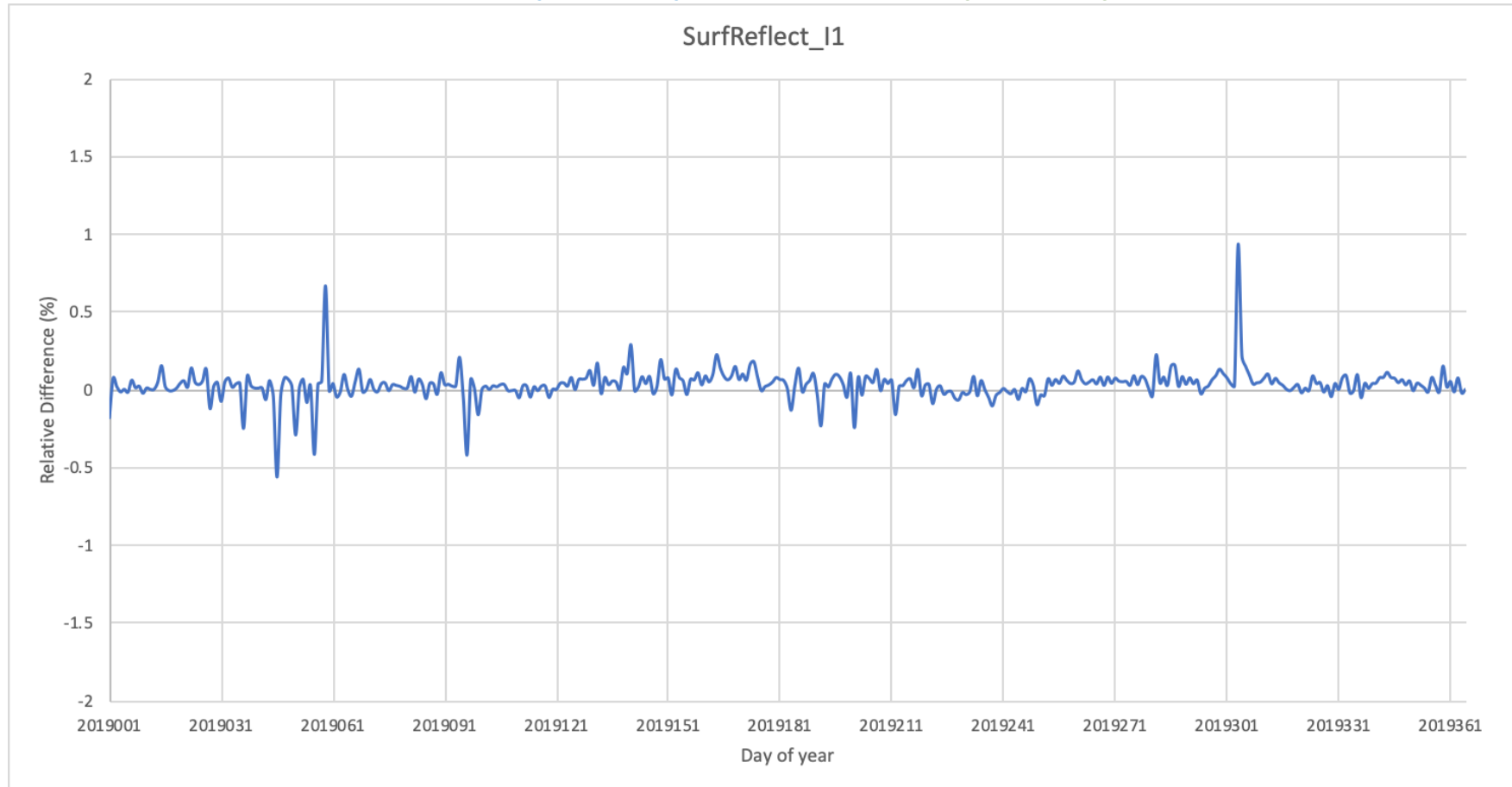
CMG Comparison (BRDF Corrected)

VNP09CMG(AS3314) Vs. VNP09CMG(AS5000)
and
VNP09CMG(AS3314) Vs. MYD09CMG(AS6)

Relative Difference

Relative Difference I1

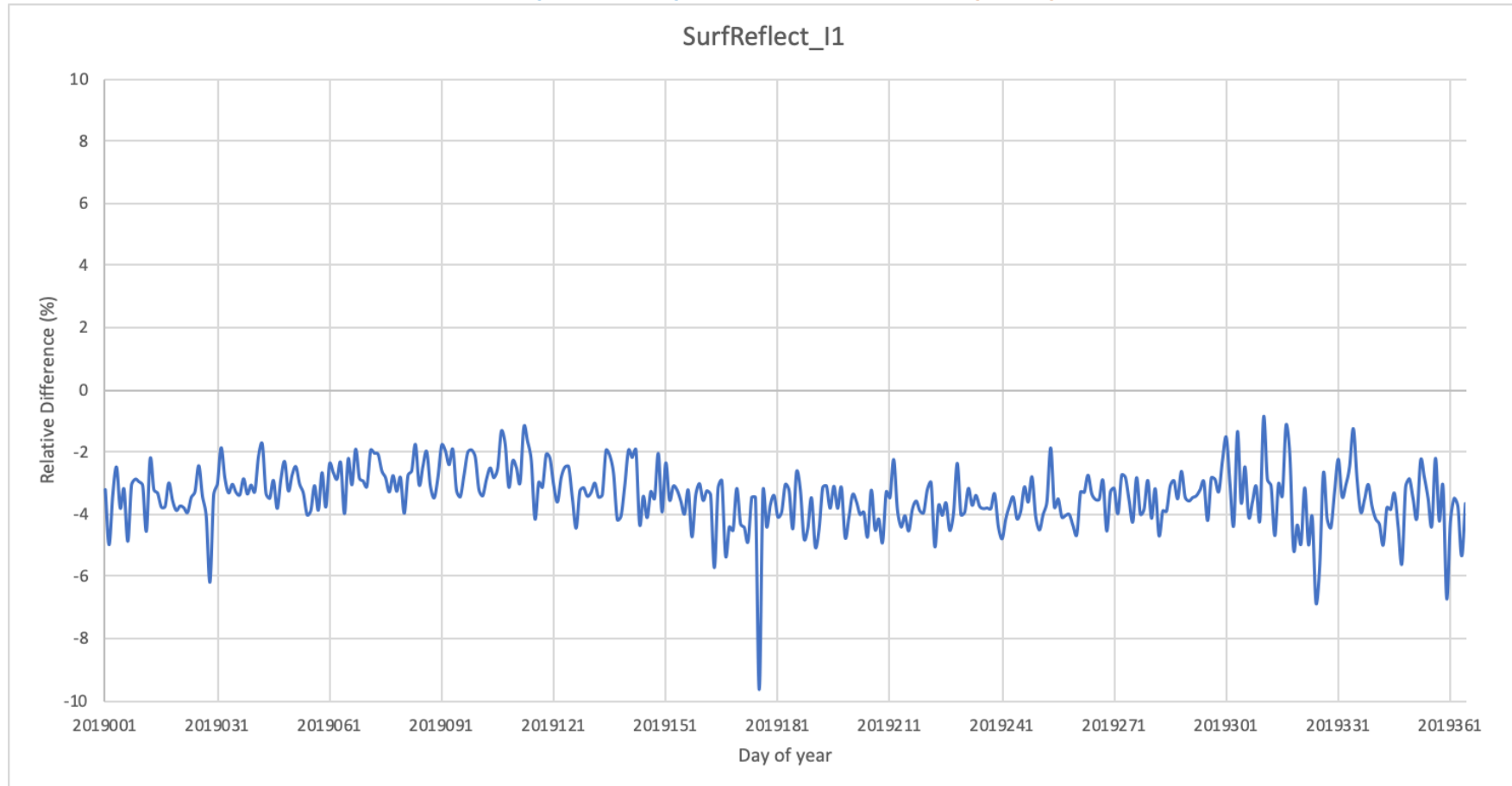
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.039%

Relative Difference I1

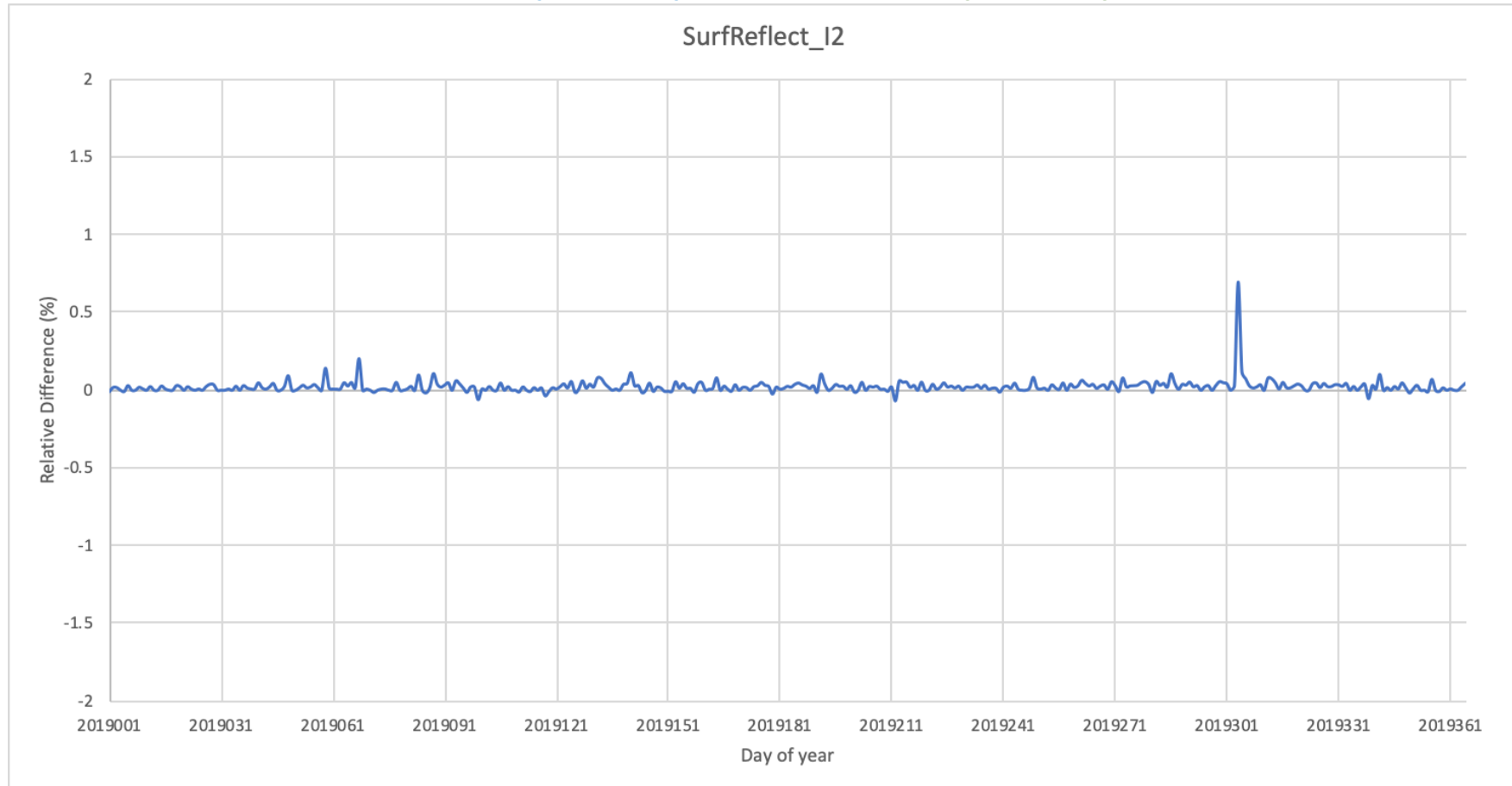
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : -3.383%

Relative Difference I2

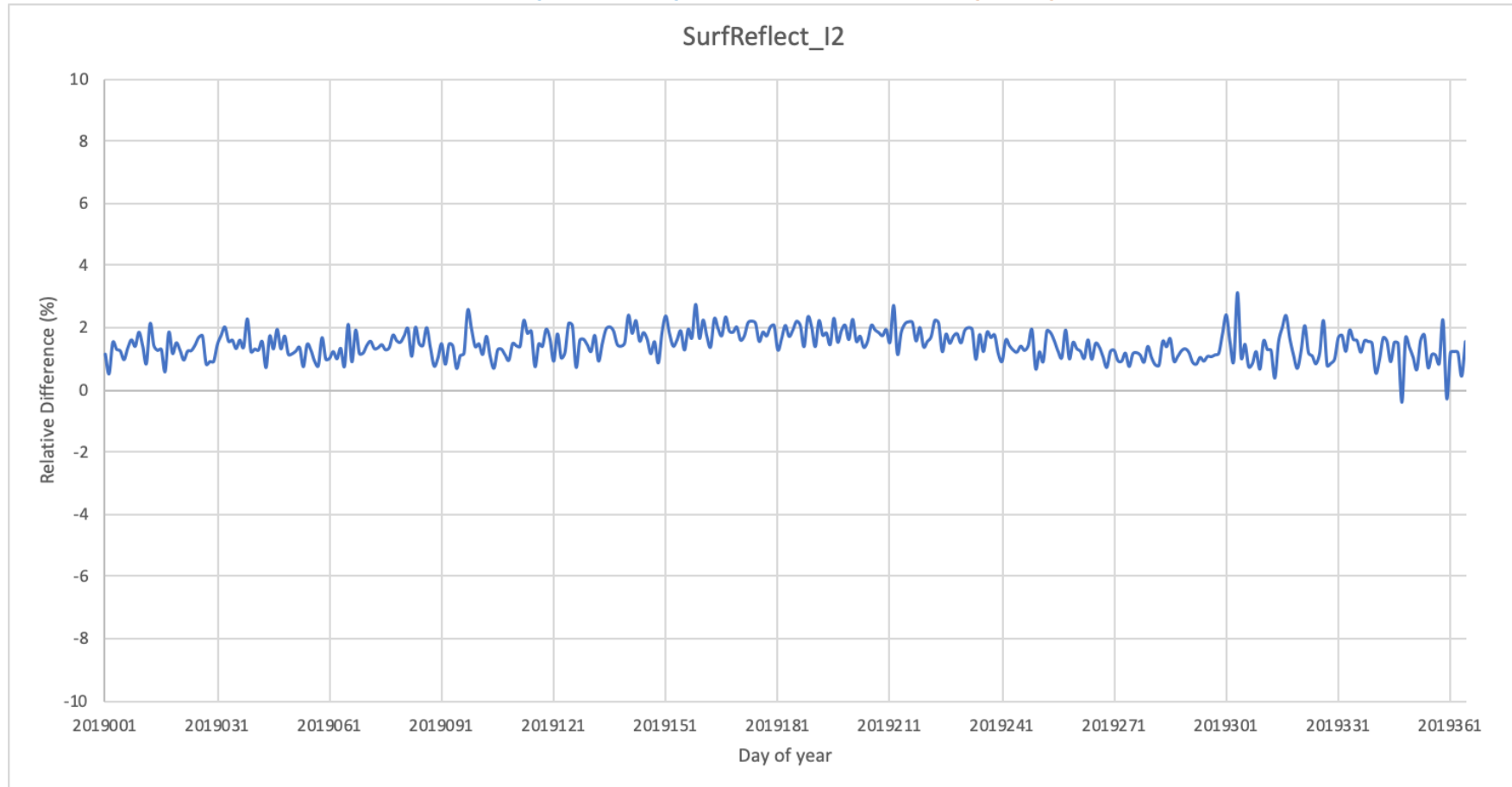
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.023%

Relative Difference I2

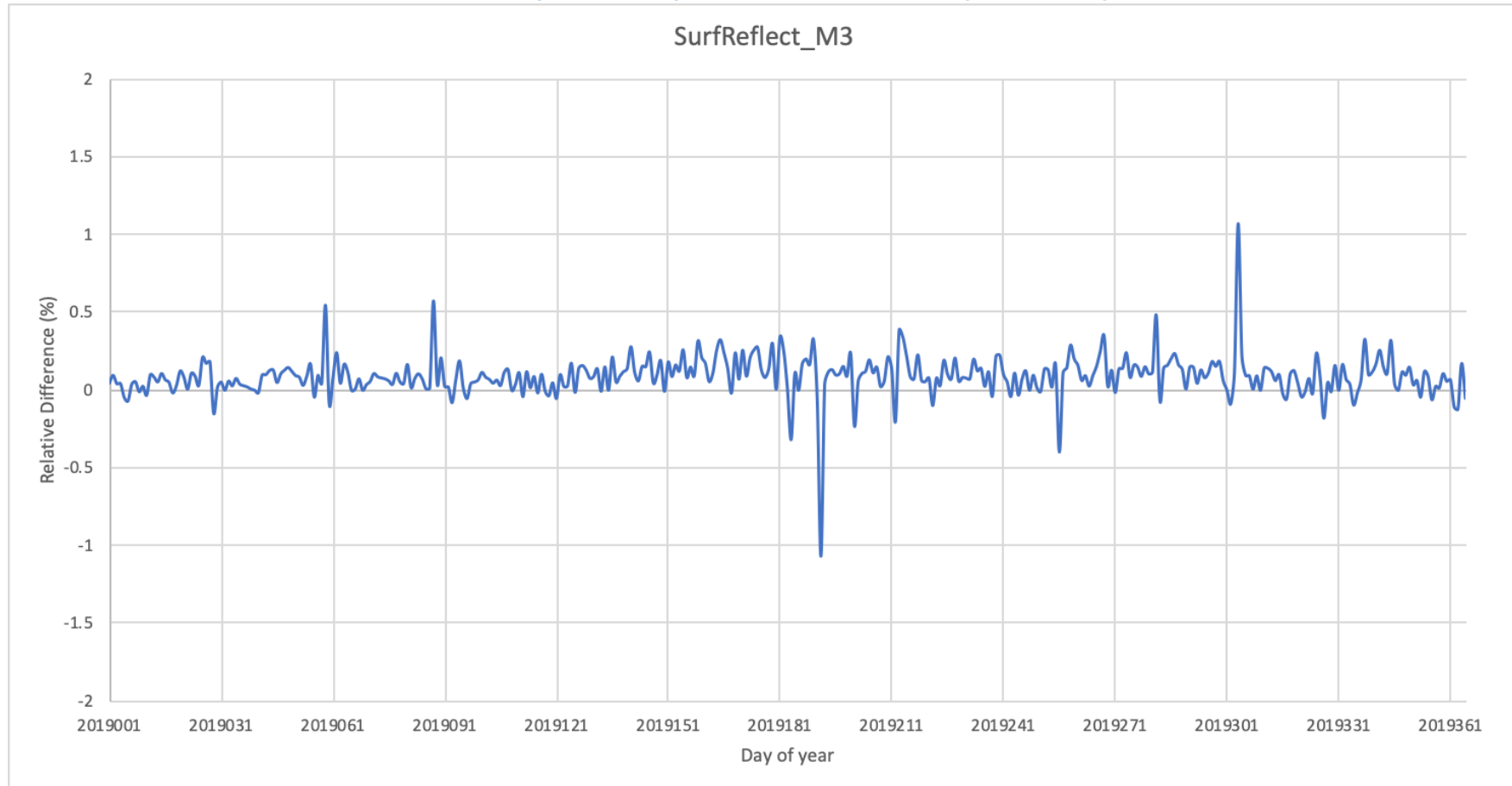
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 1.455

Relative Difference M3

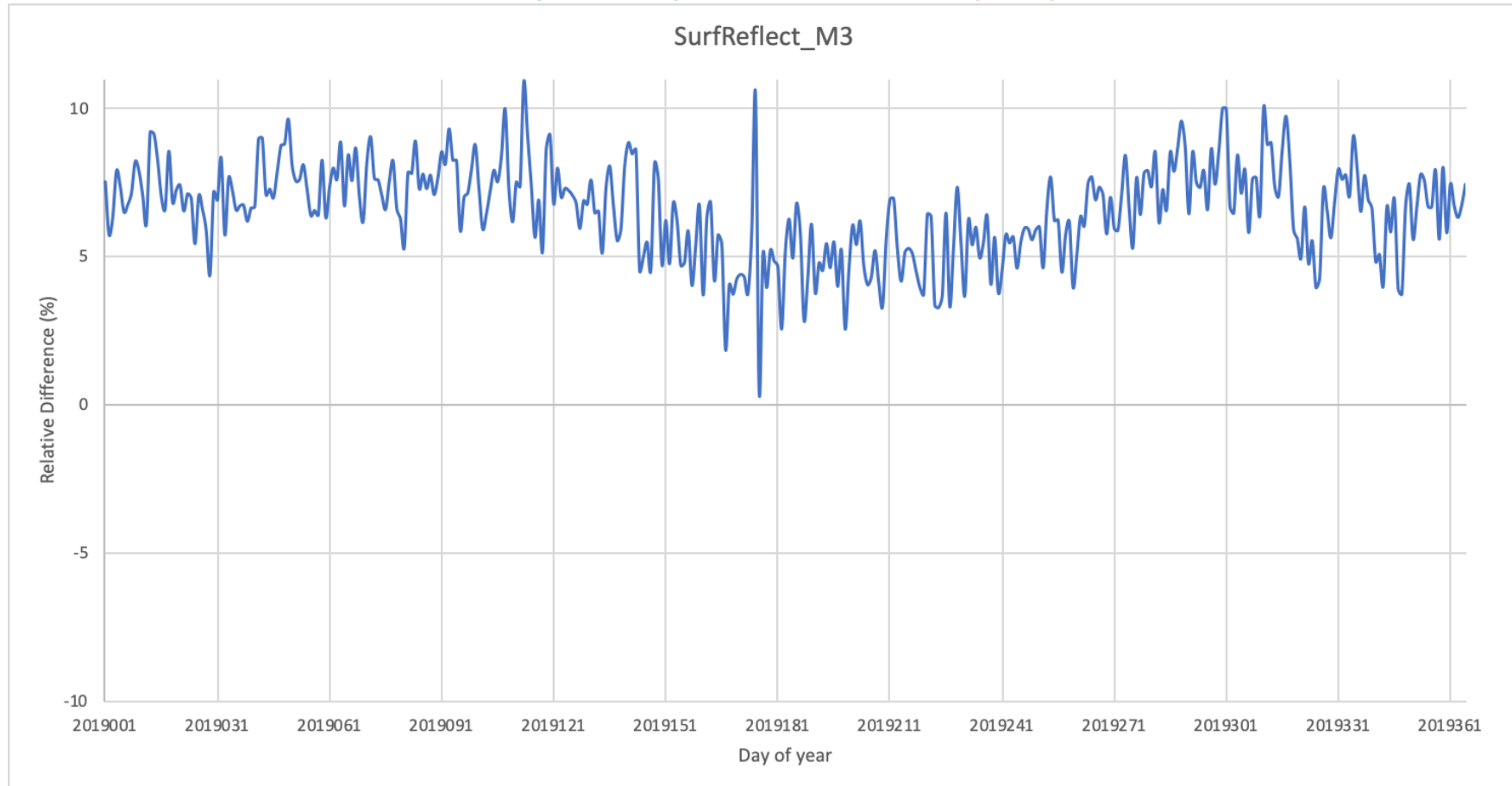
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.091%

Relative Difference M3

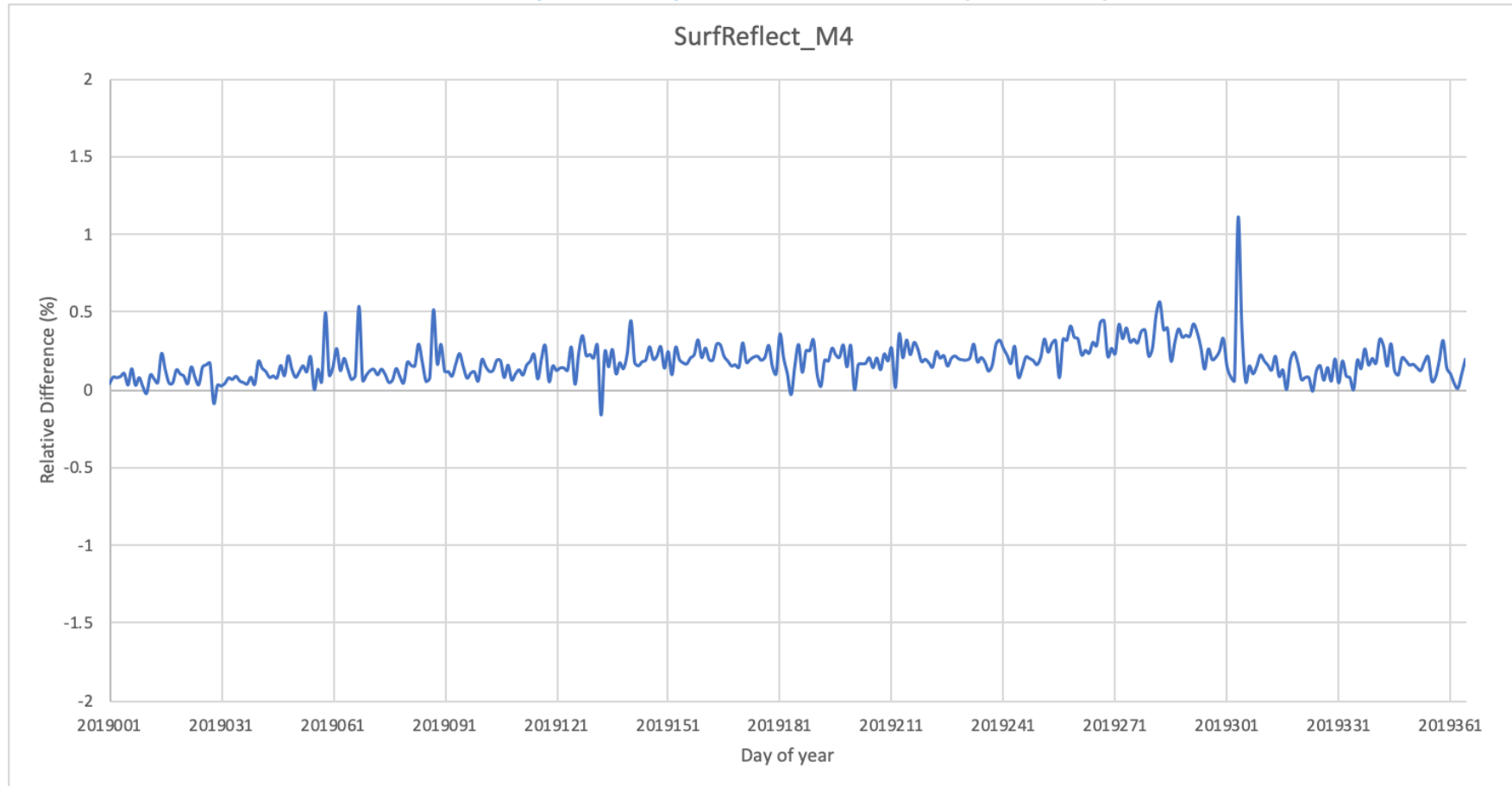
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 6.552%

Relative Difference M4

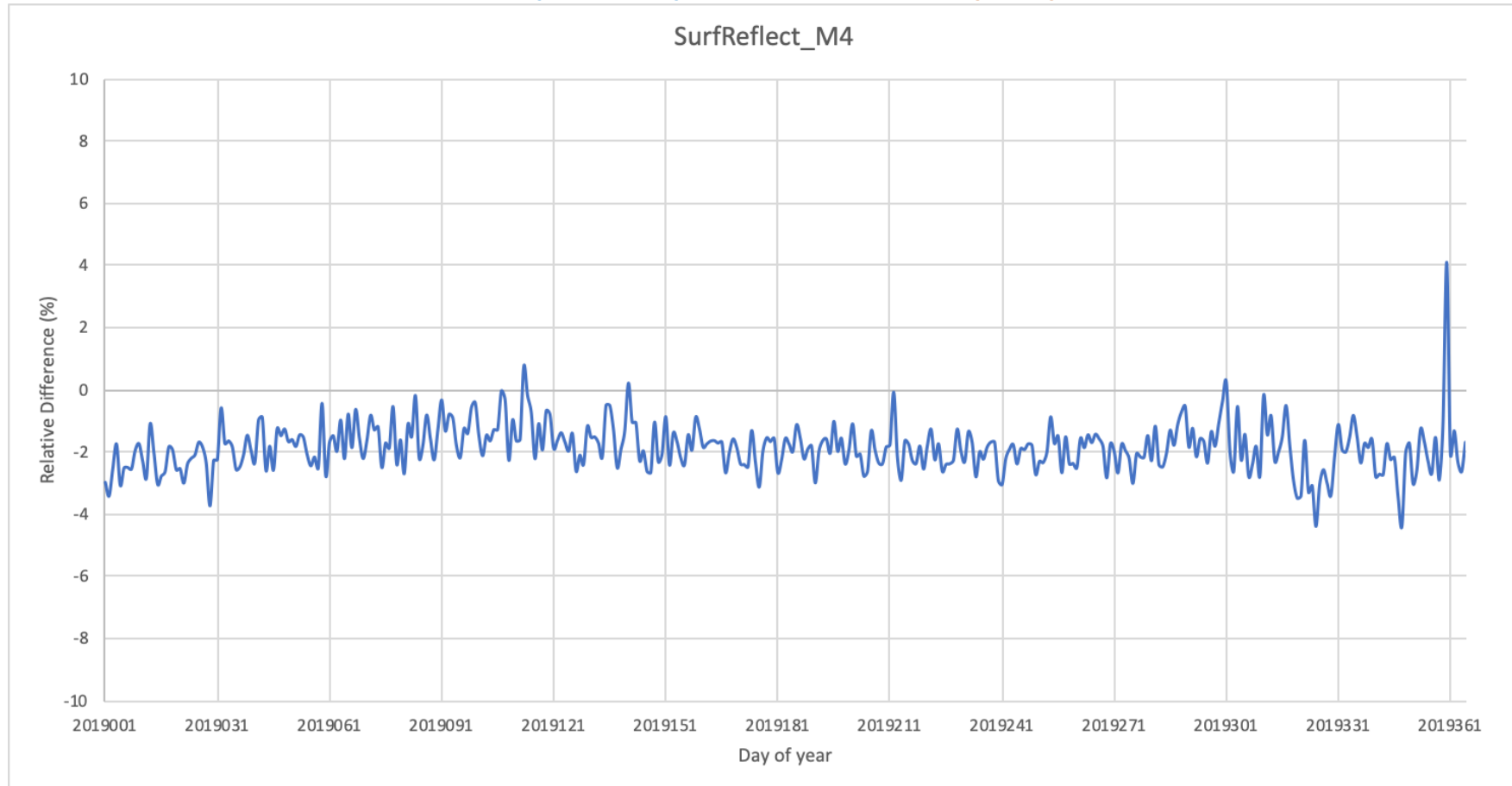
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.179%

Relative Difference M4

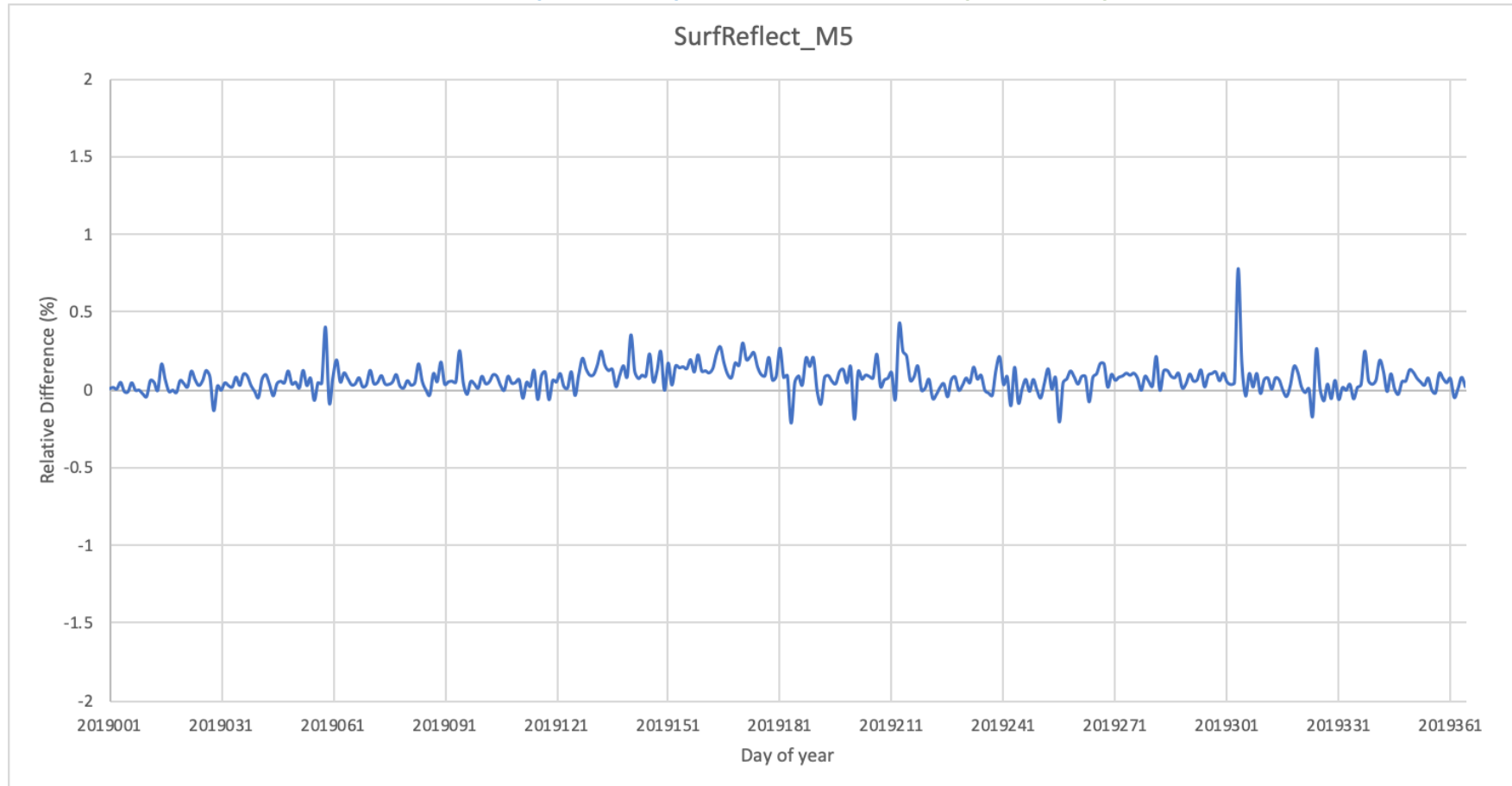
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : -1.853%

Relative Difference M5

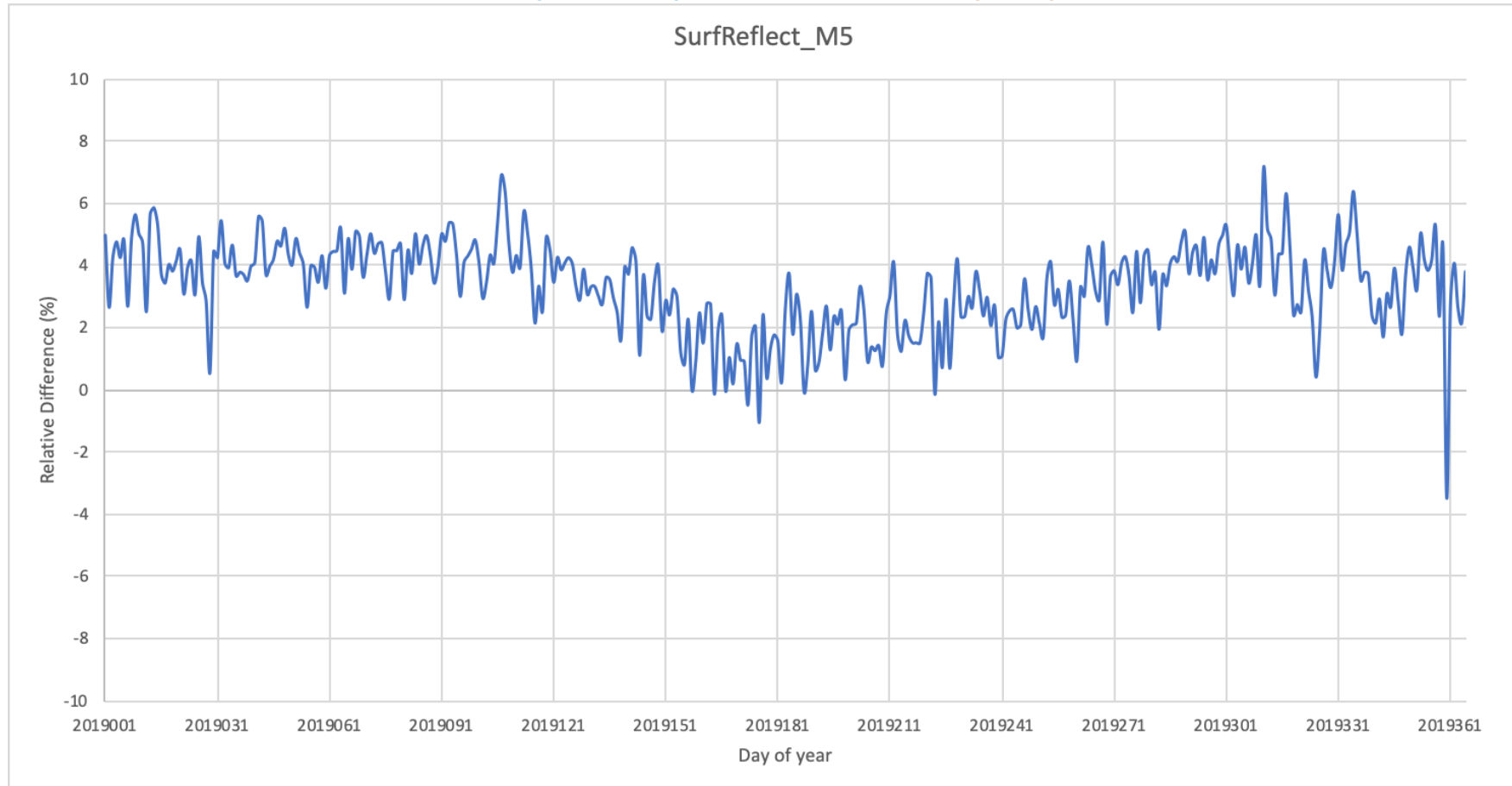
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.072%

Relative Difference M5

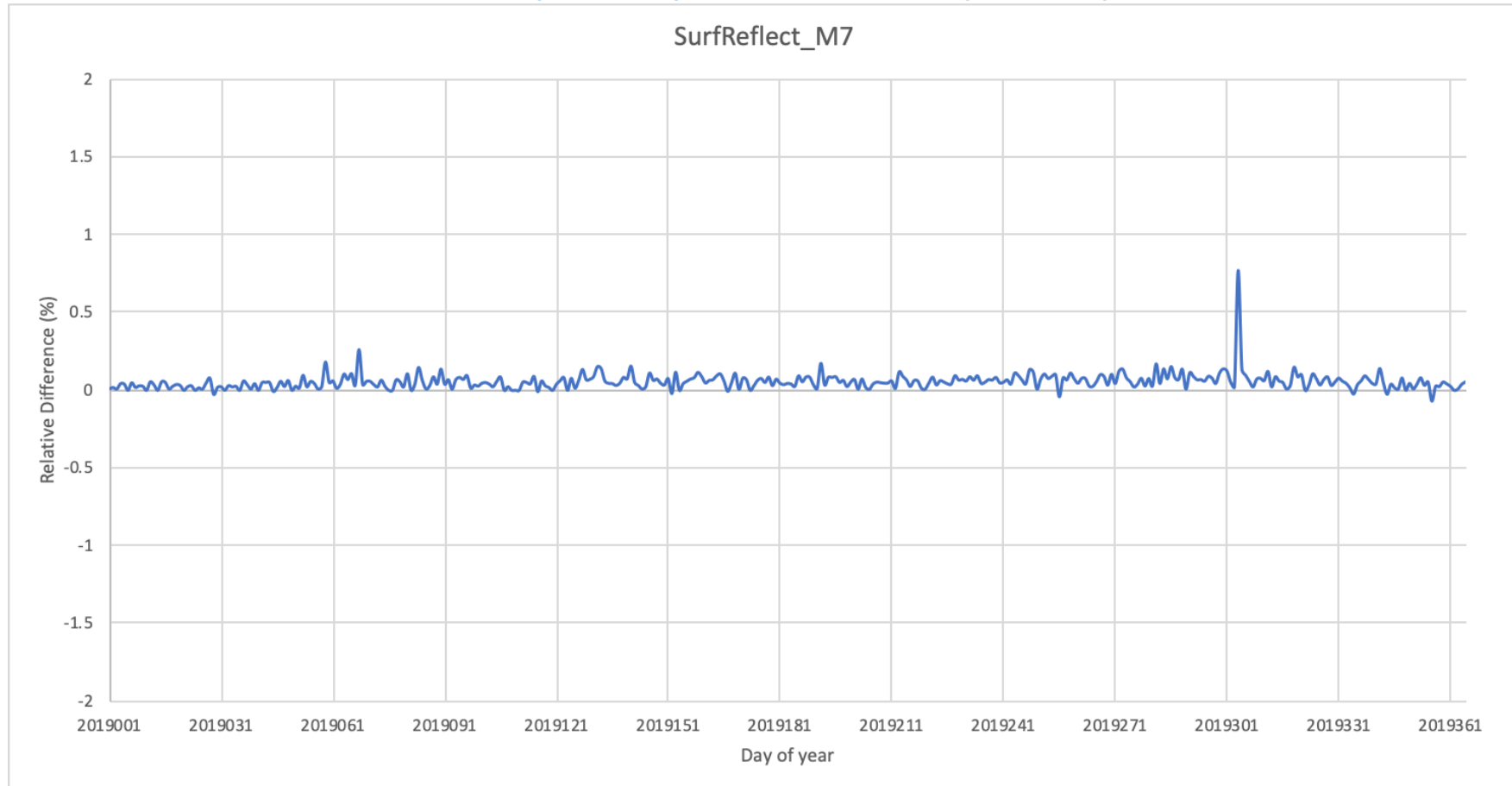
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 3.304%

Relative Difference M7

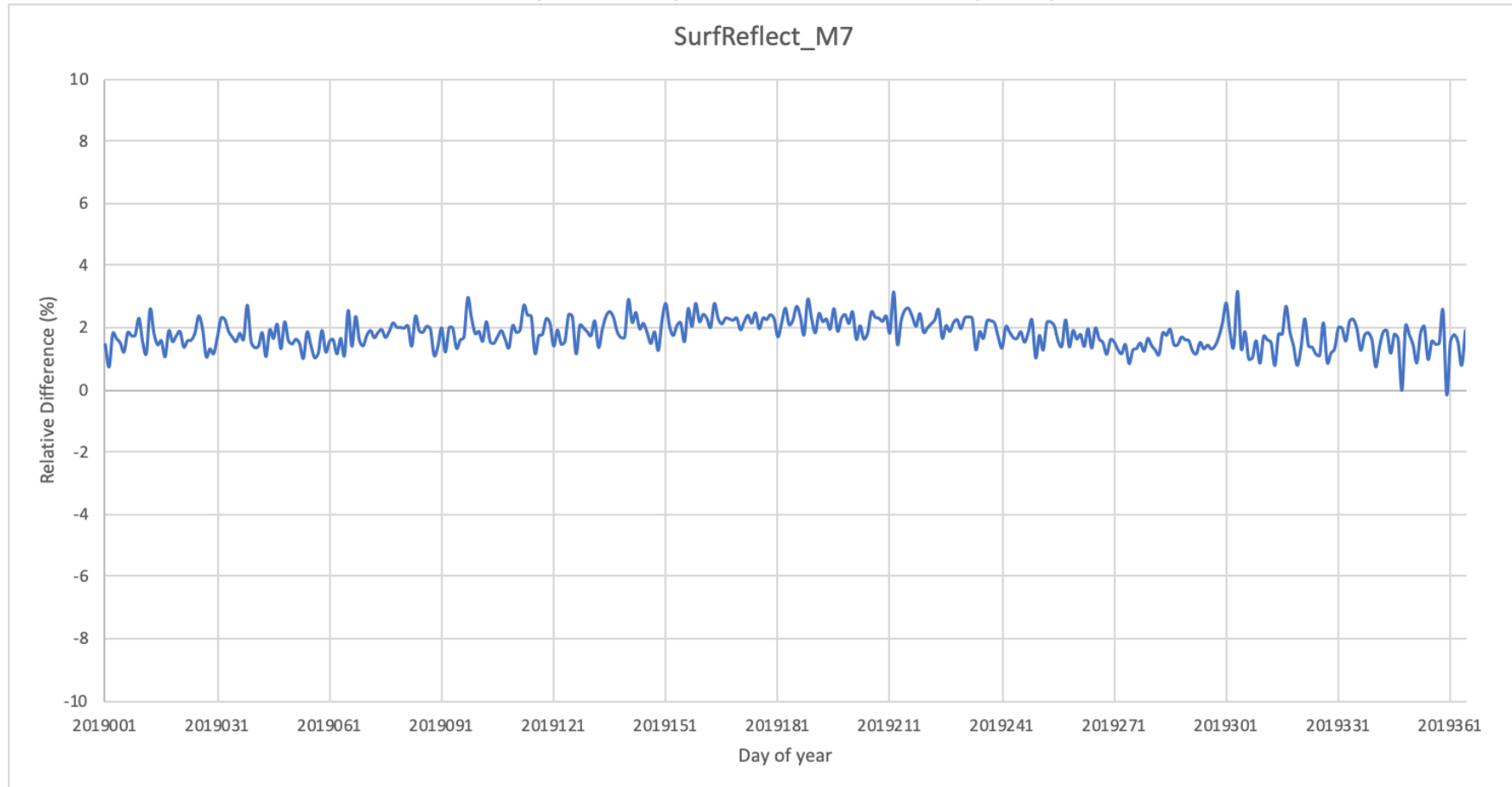
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.055%

Relative Difference M7

VNP09CMG(AS3314) VS. MYD09CMG(AS6)

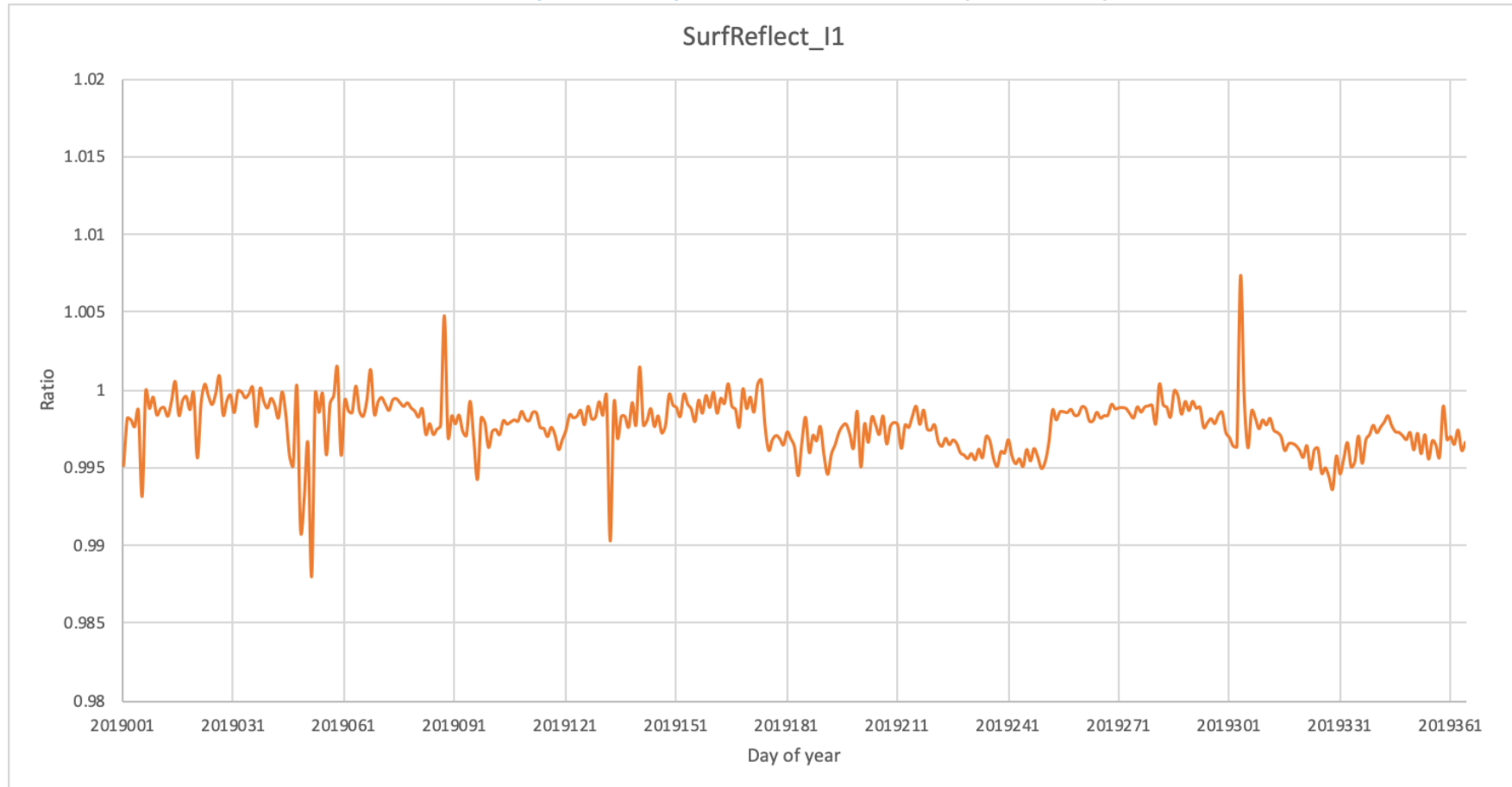


Average : 1.818%

Ratio

Ratio I1

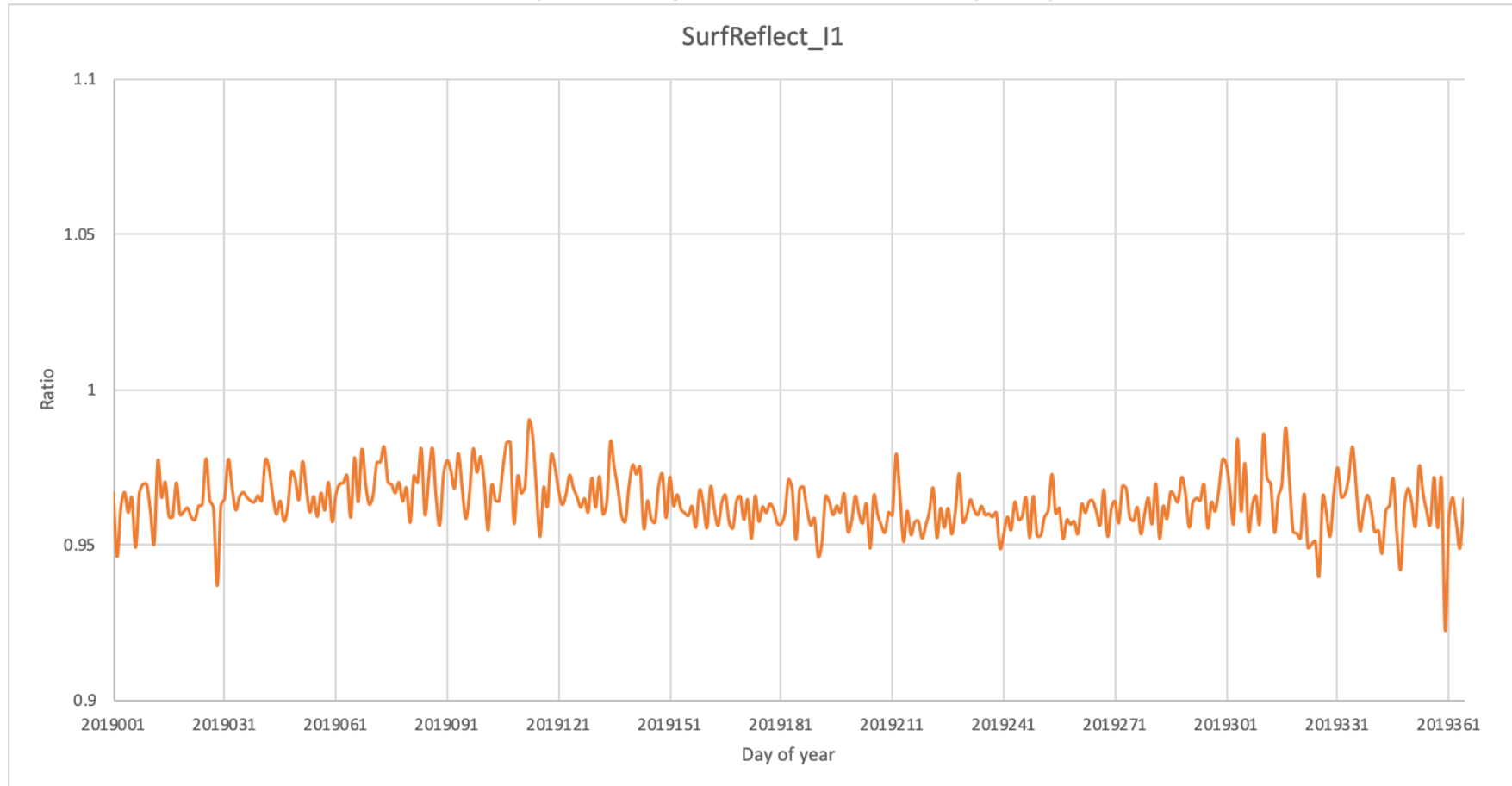
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.998

Ratio I1

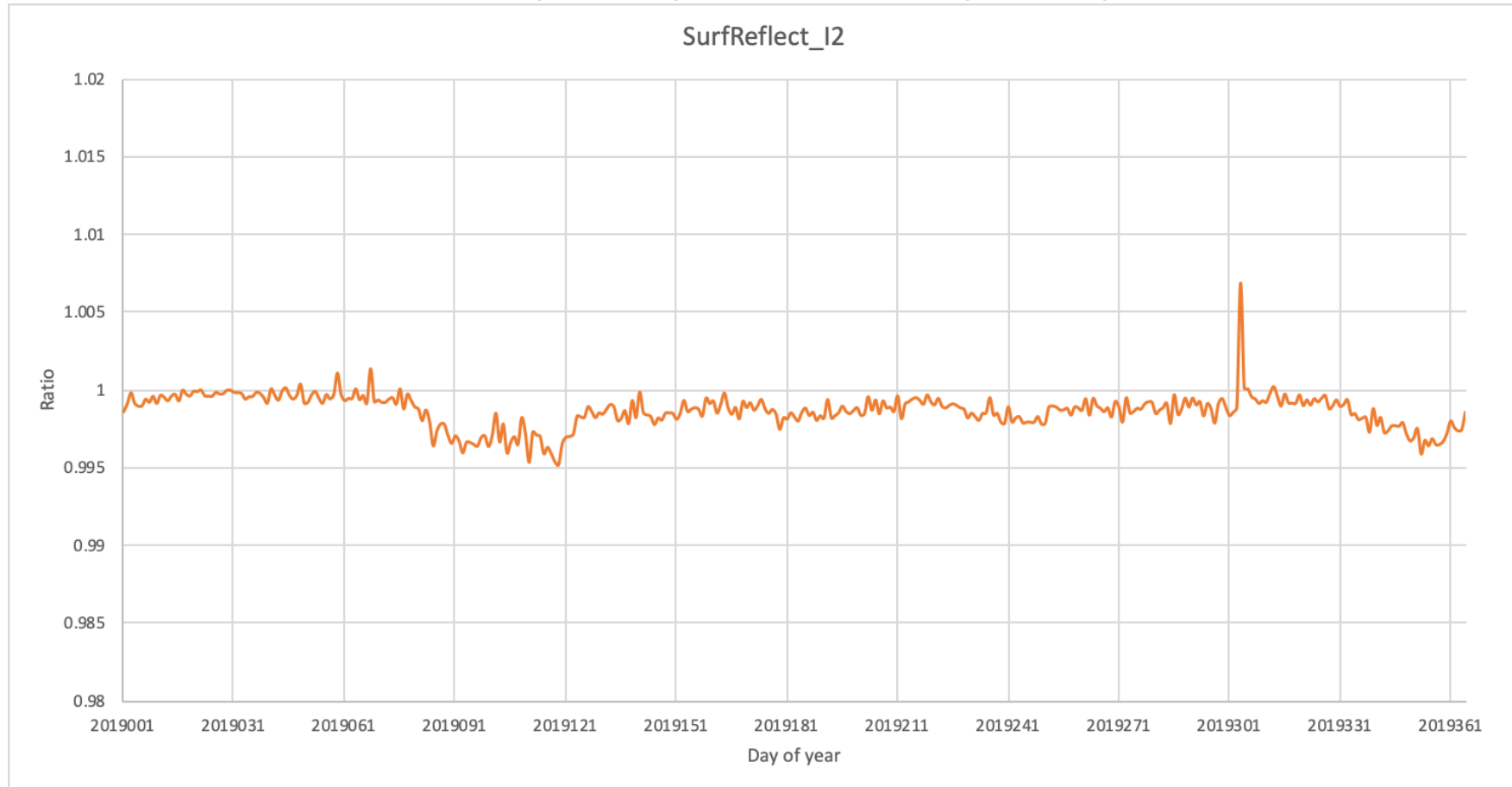
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 0.963

Ratio I2

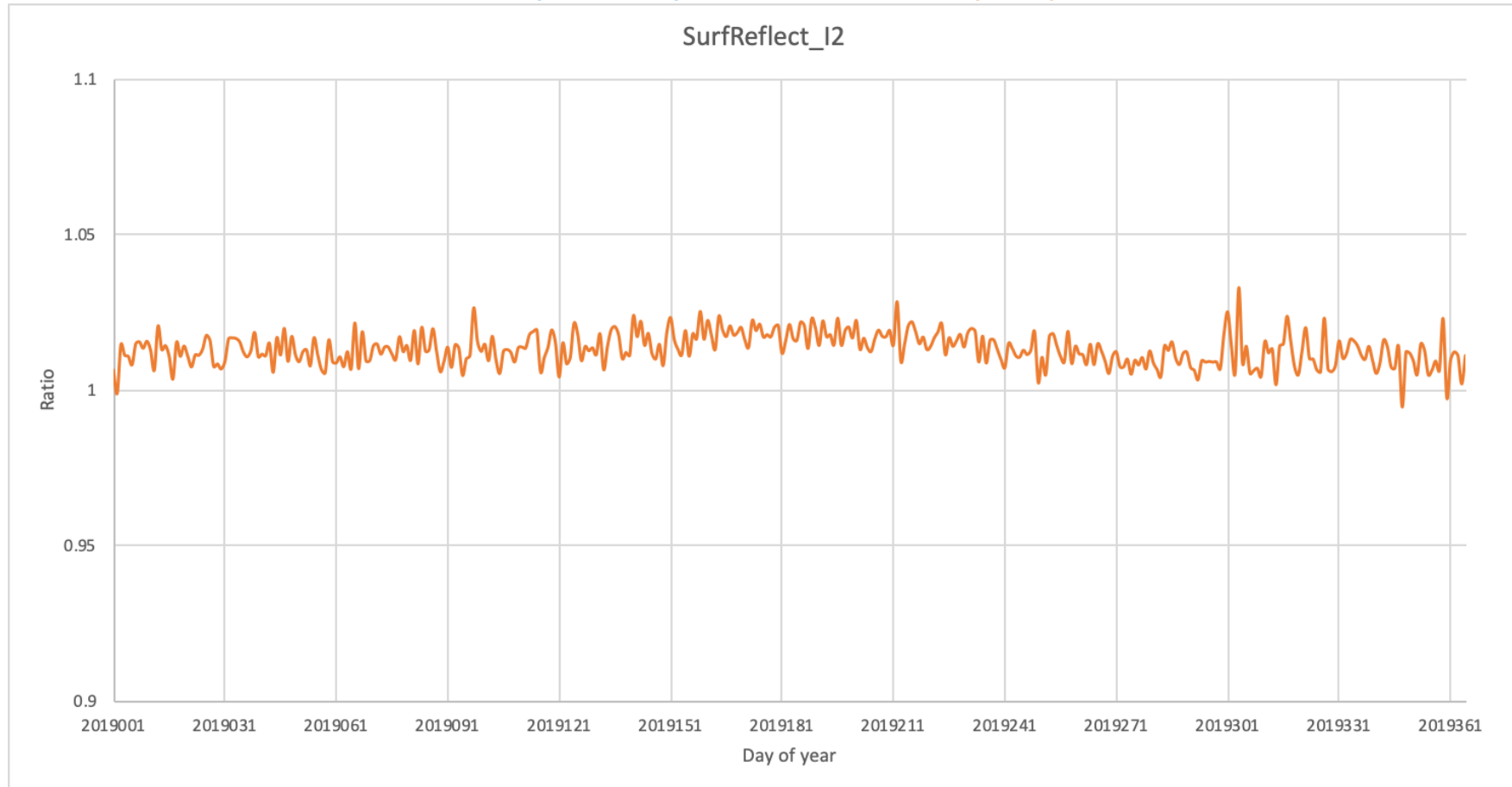
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.999

Ratio I2

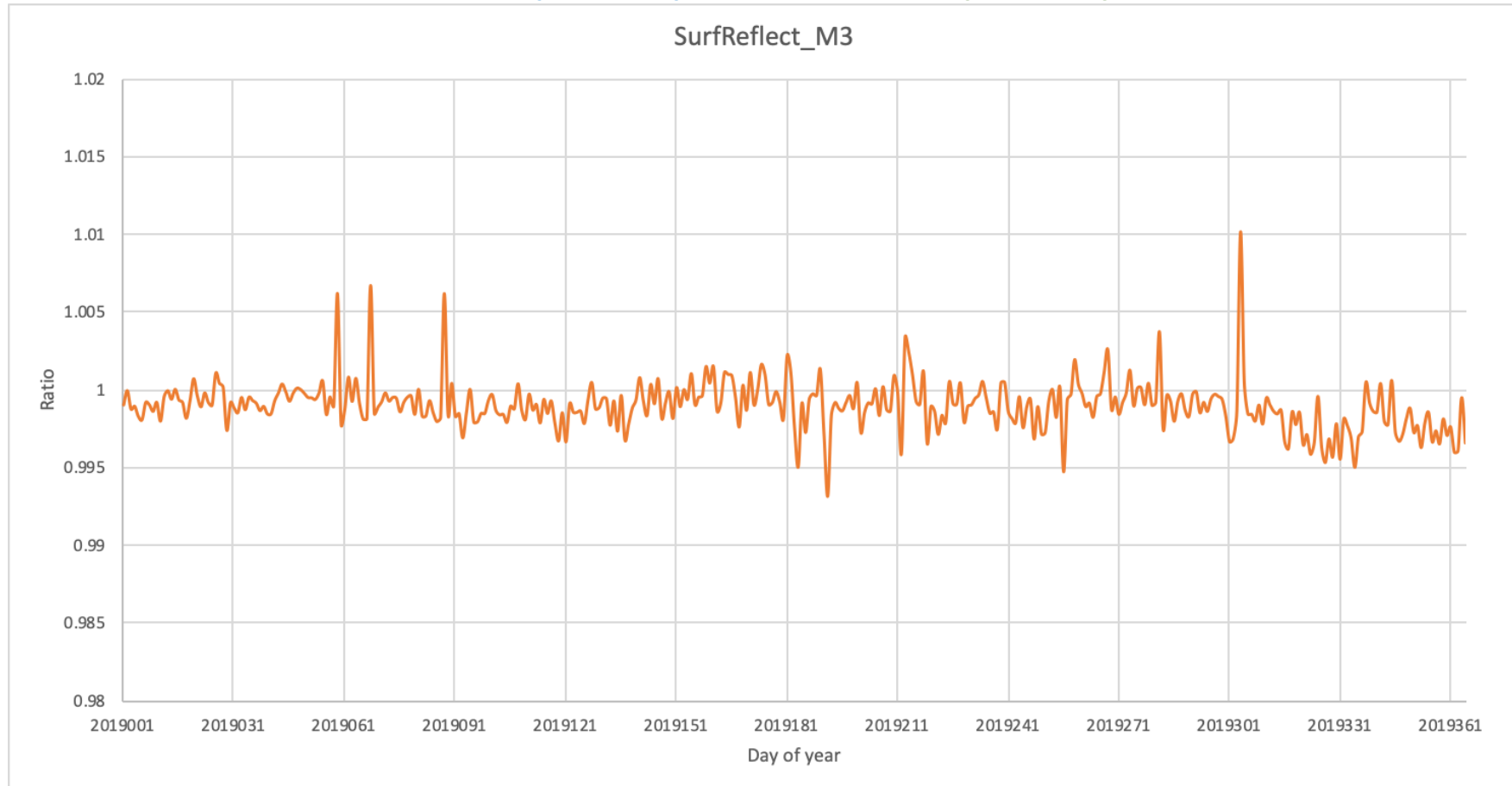
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 1.013

Ratio M3

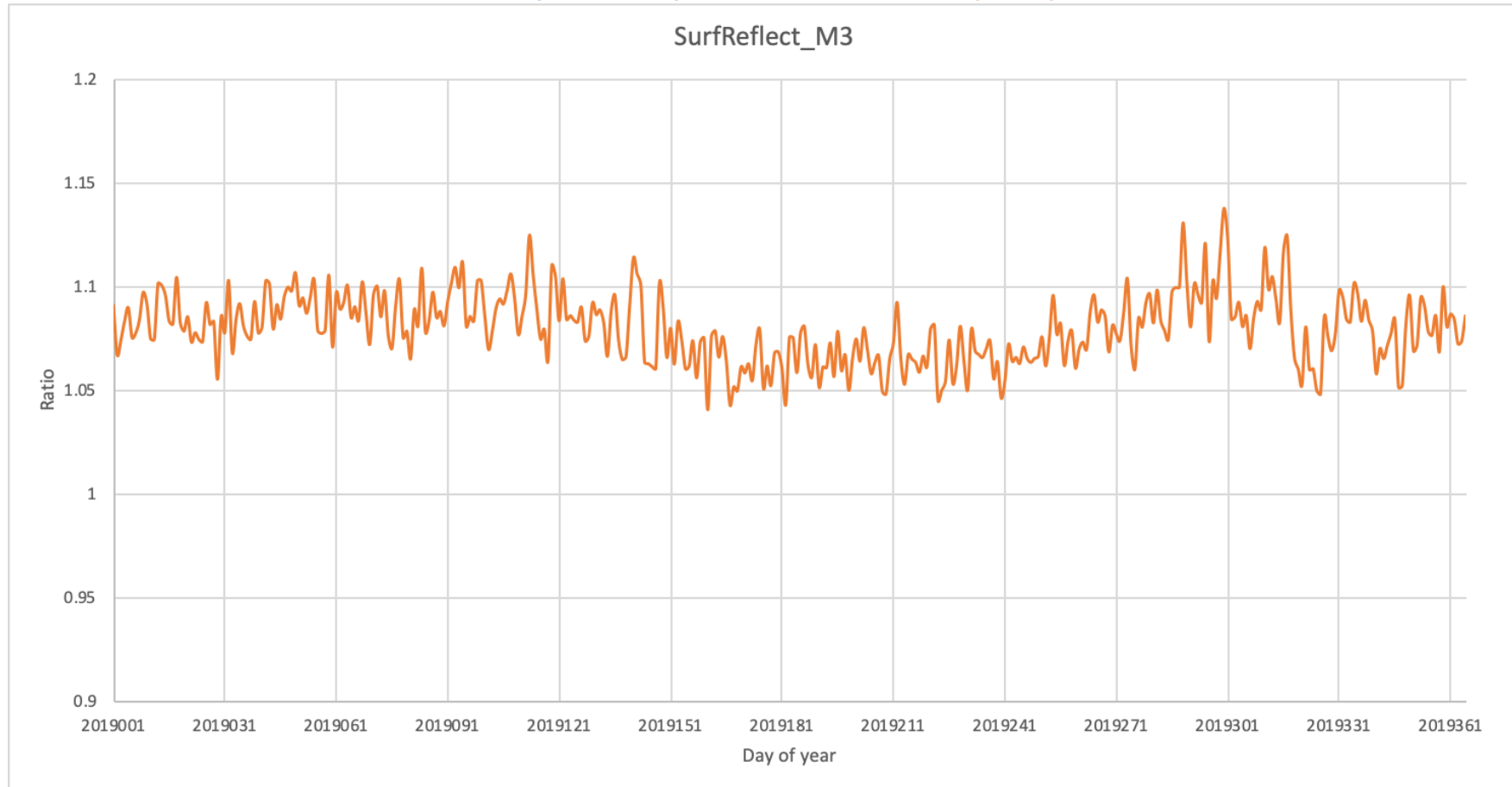
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.999

Ratio M3

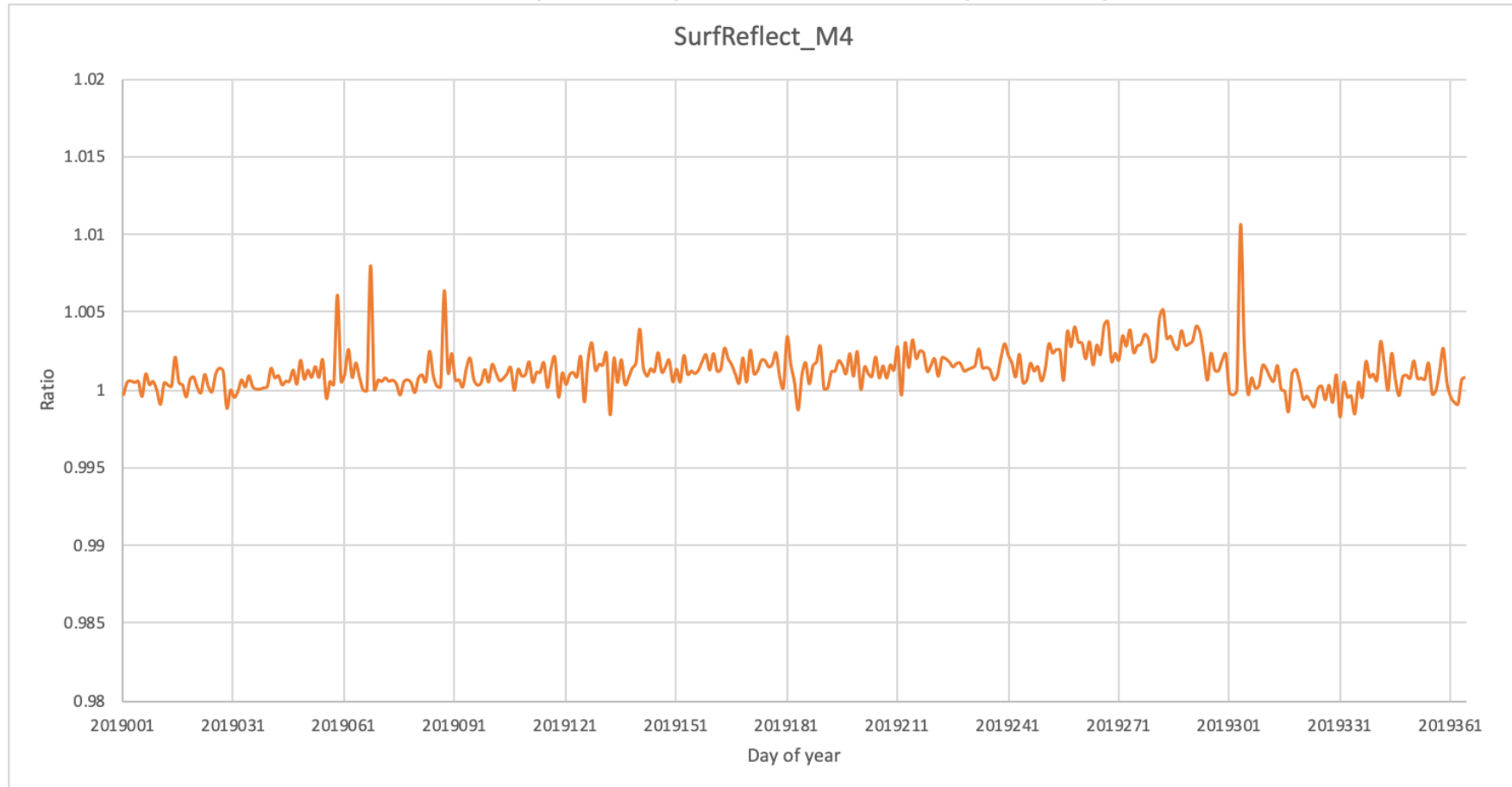
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 1.080

Ratio M4

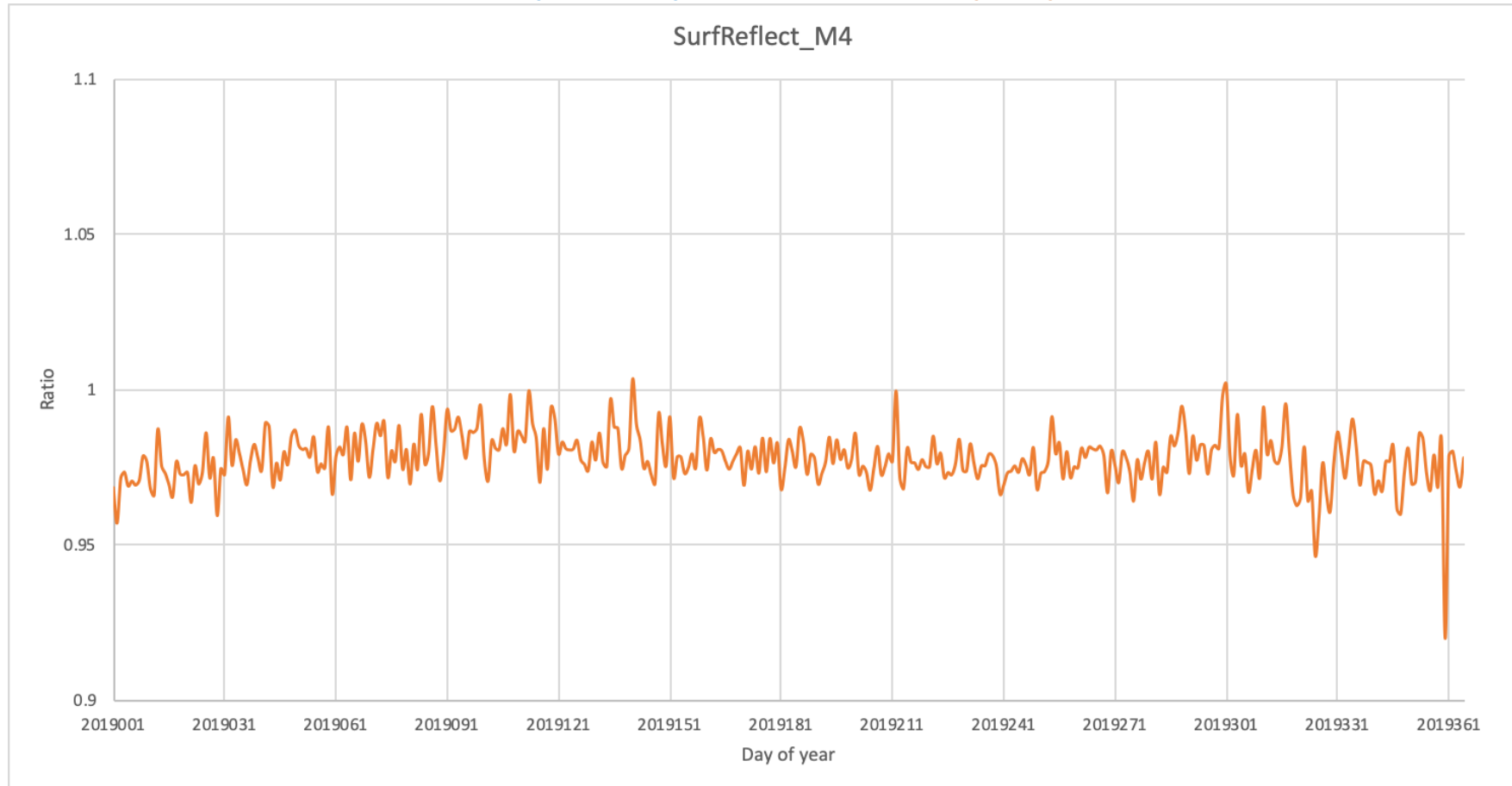
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 1.001

Ratio M4

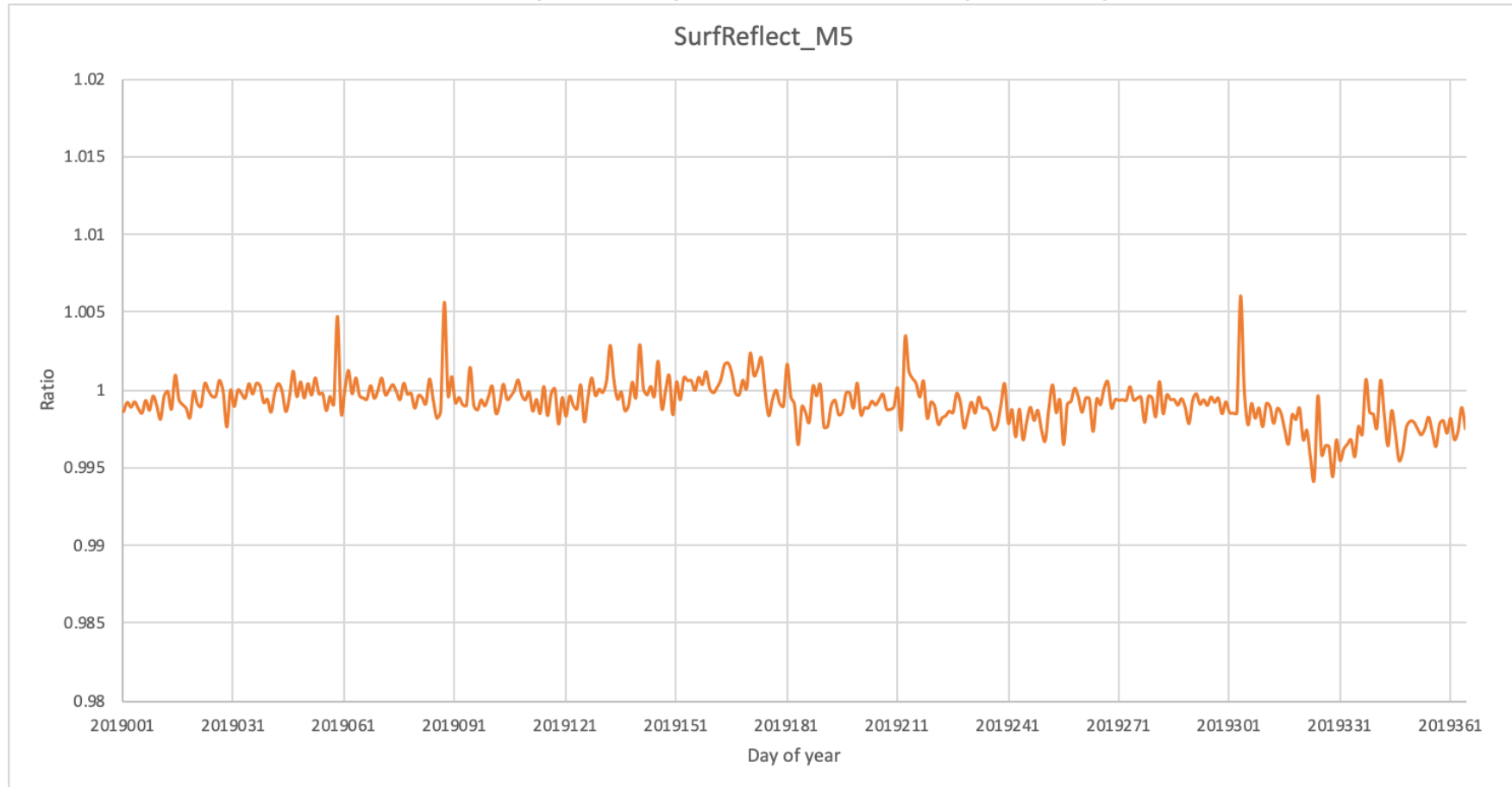
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 0.978

Ratio M5

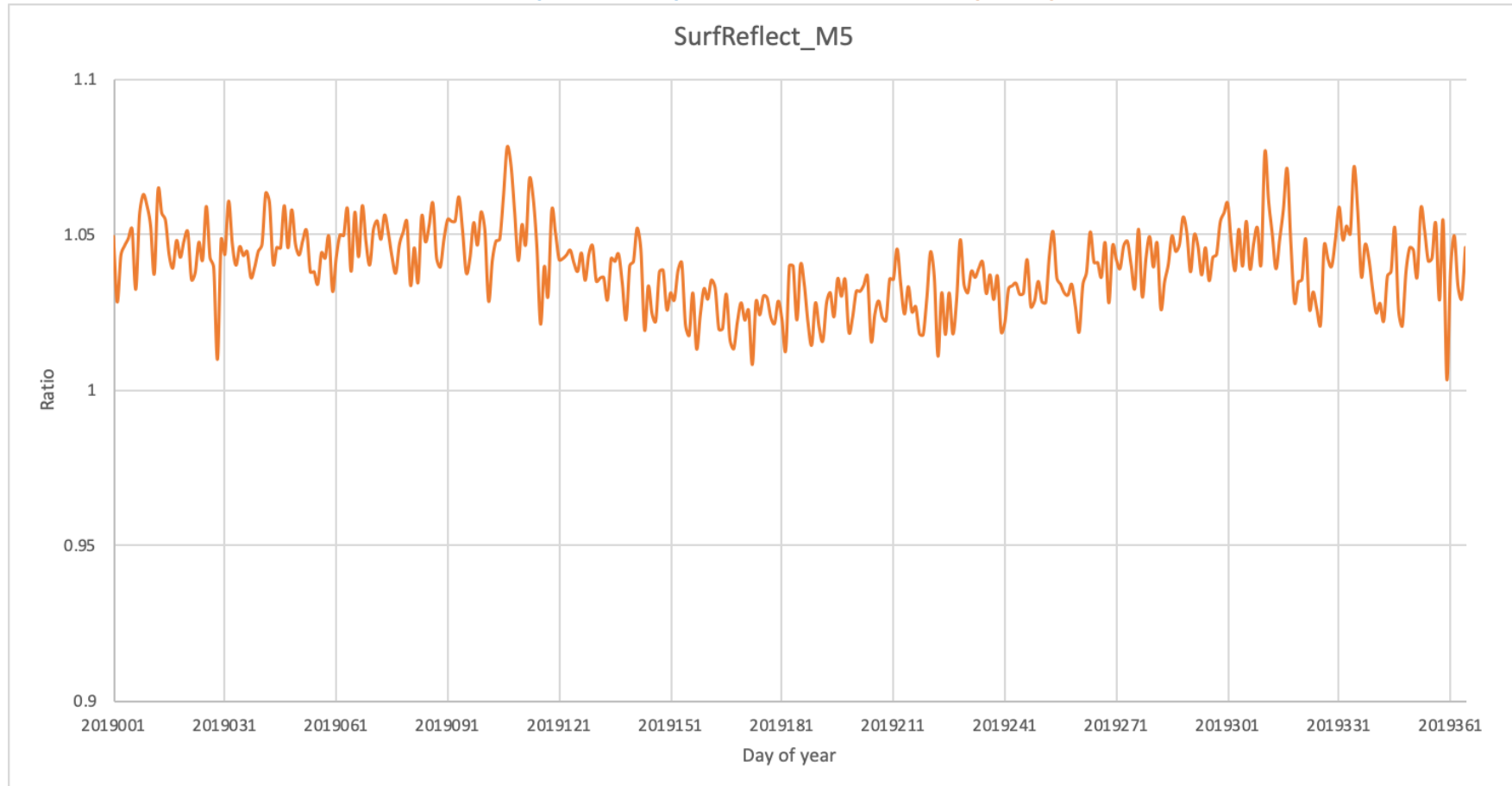
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 0.999

Ratio M5

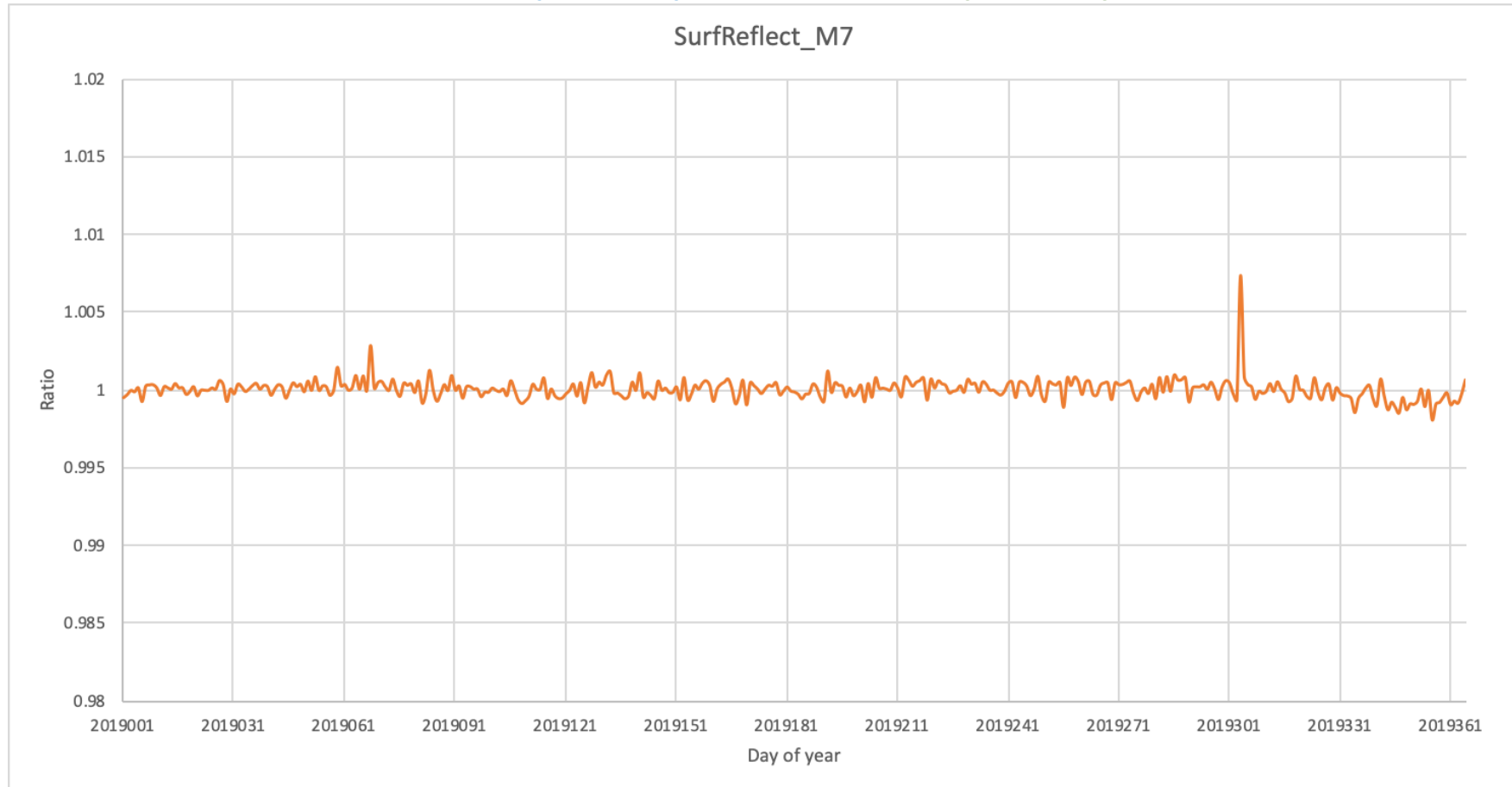
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



Average : 1.040

Ratio M7

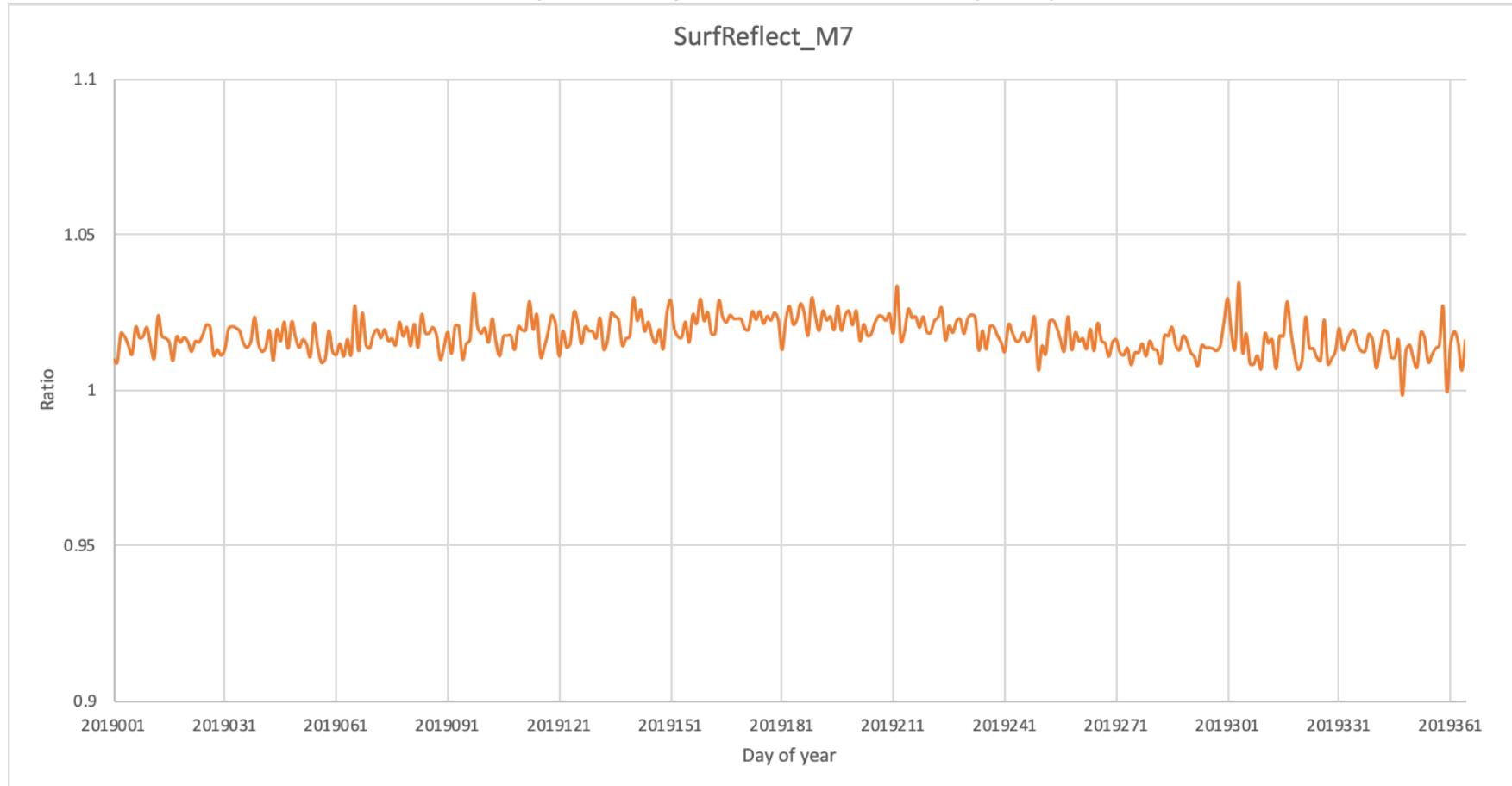
VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



Average : 1.000

Ratio M7

VNP09CMG(AS3314) VS. MYD09CMG(AS6)

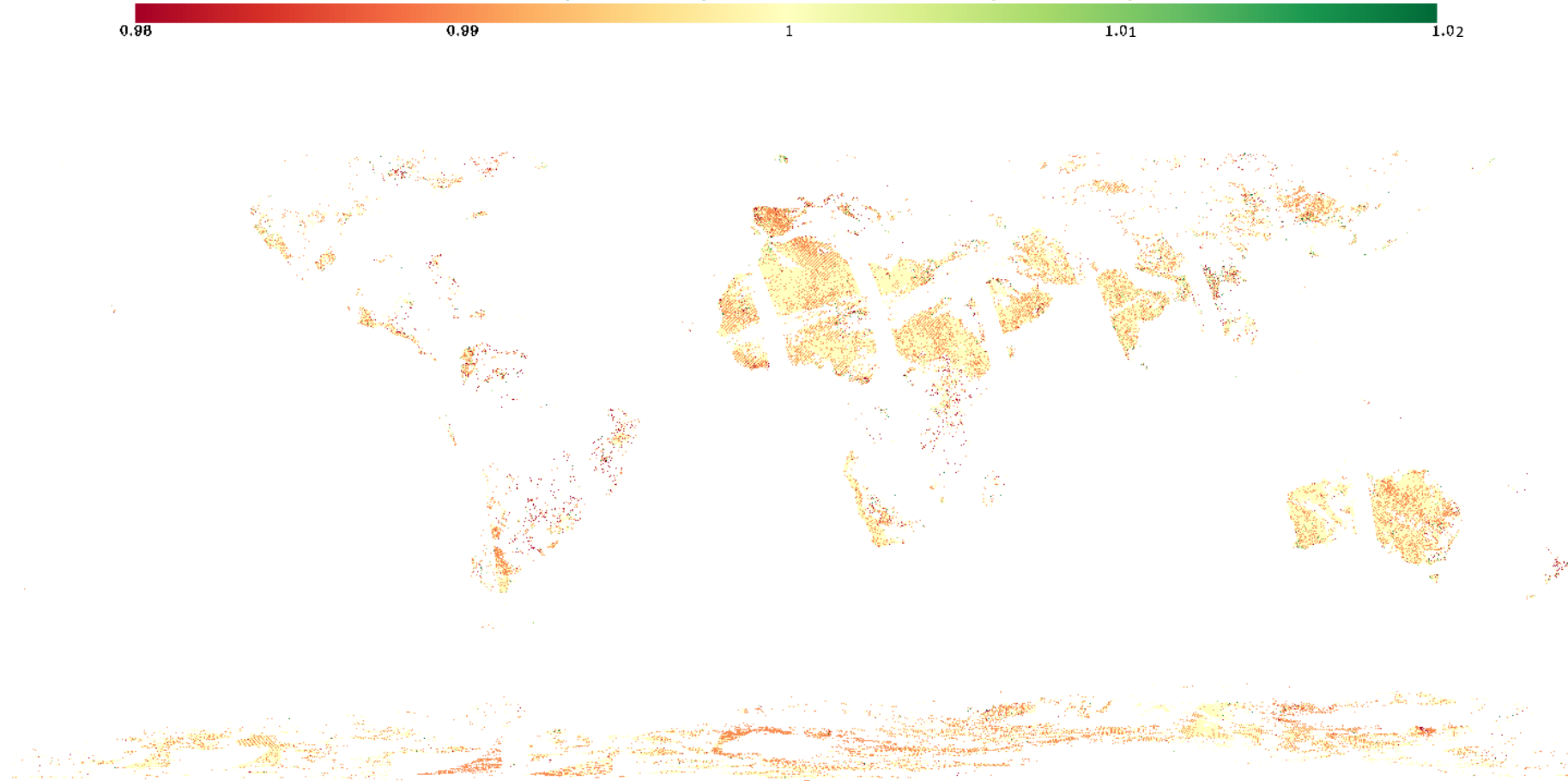


Average : 1.017

Global Map of Ratio

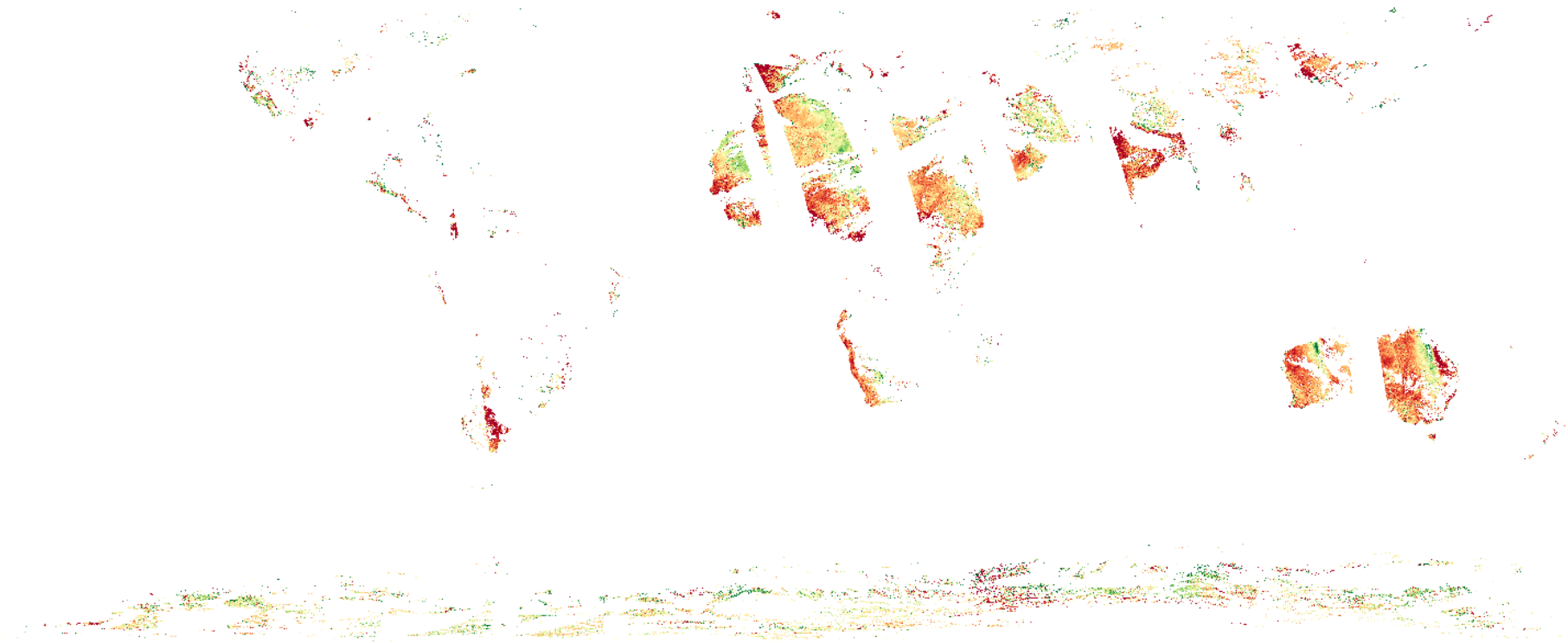
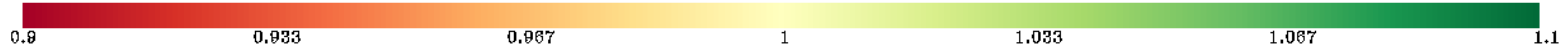
Ratio 2019001 I1

VNP09CMG(AS3314) VS. VNP09CMG(AS5000)

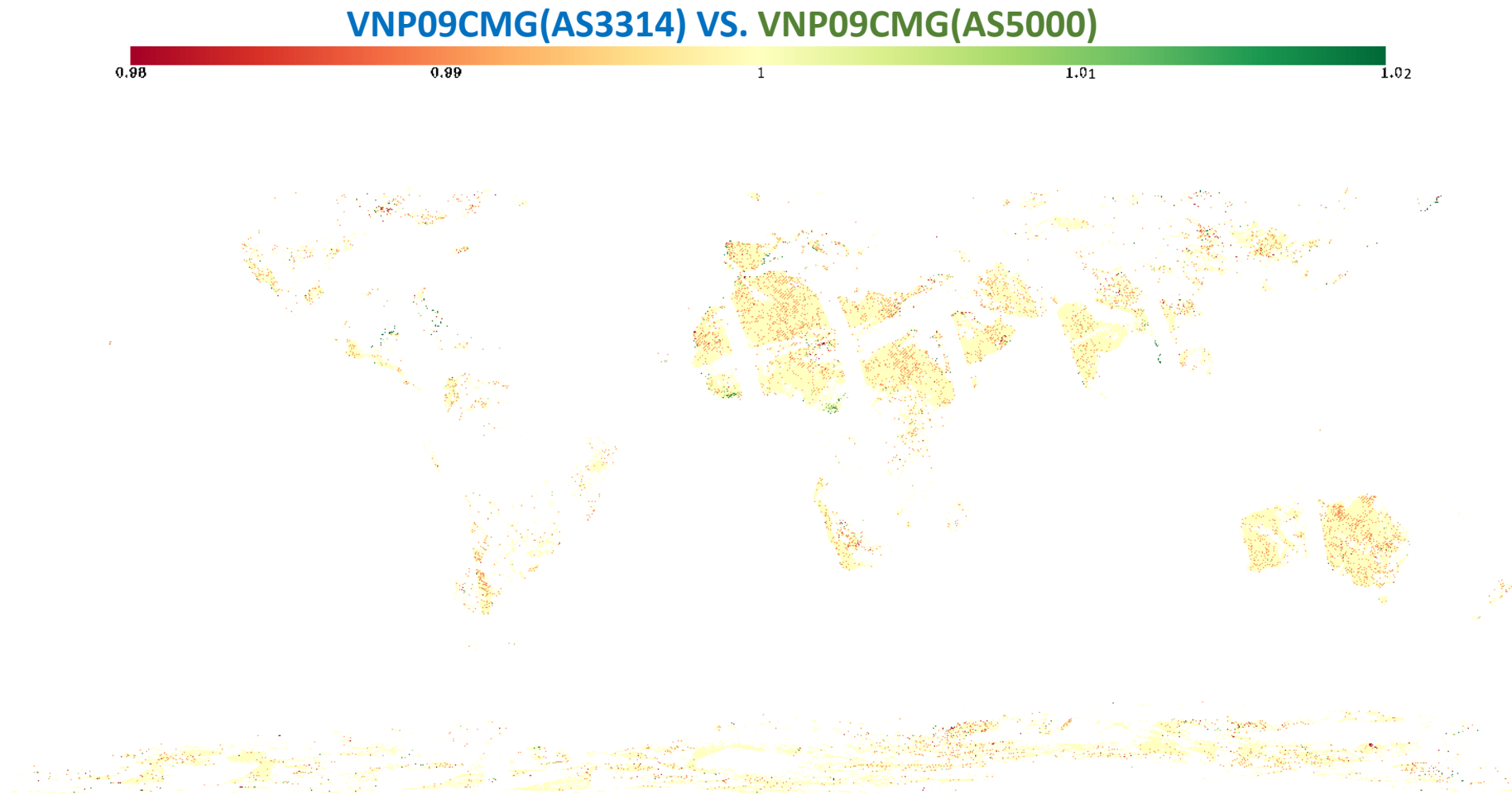


Ratio 2019001 I1

VNP09CMG(AS3314) VS. MYD09CMG(AS6)

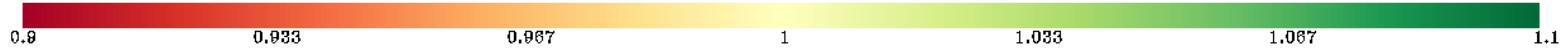


Ratio 2019001 I2

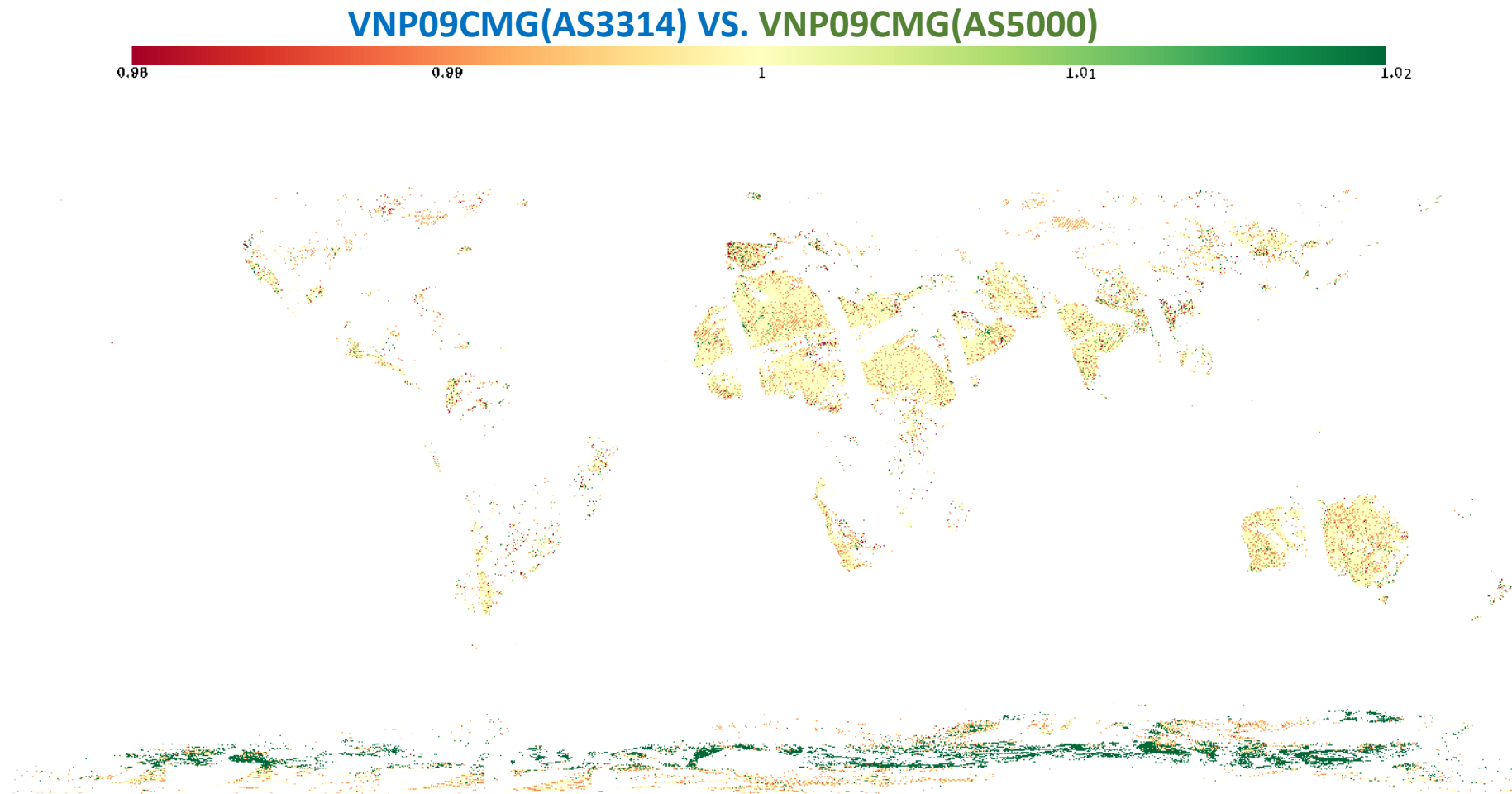


Ratio 2019001 I2

VNP09CMG(AS3314) VS. MYD09CMG(AS6)

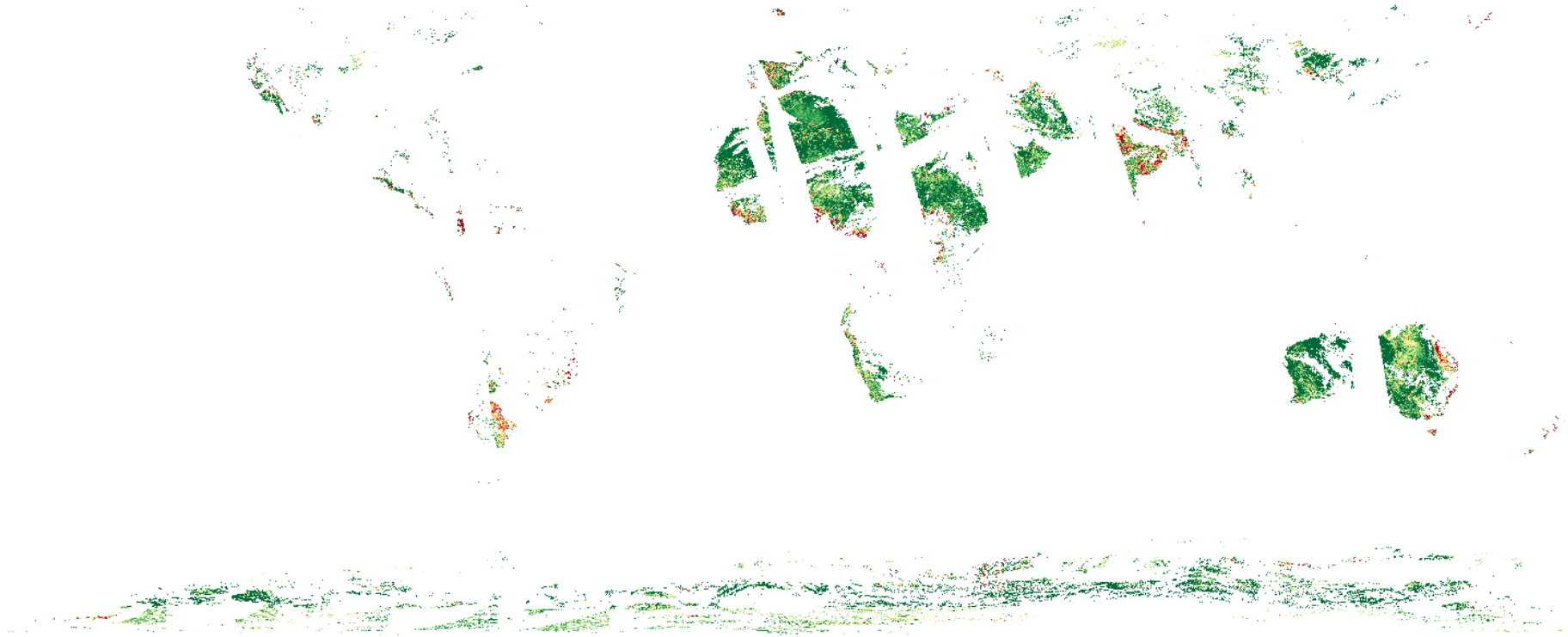
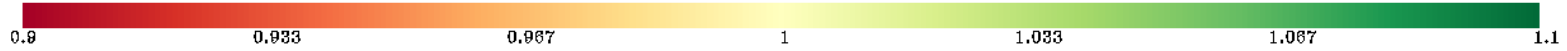


Ratio 2019001 M3

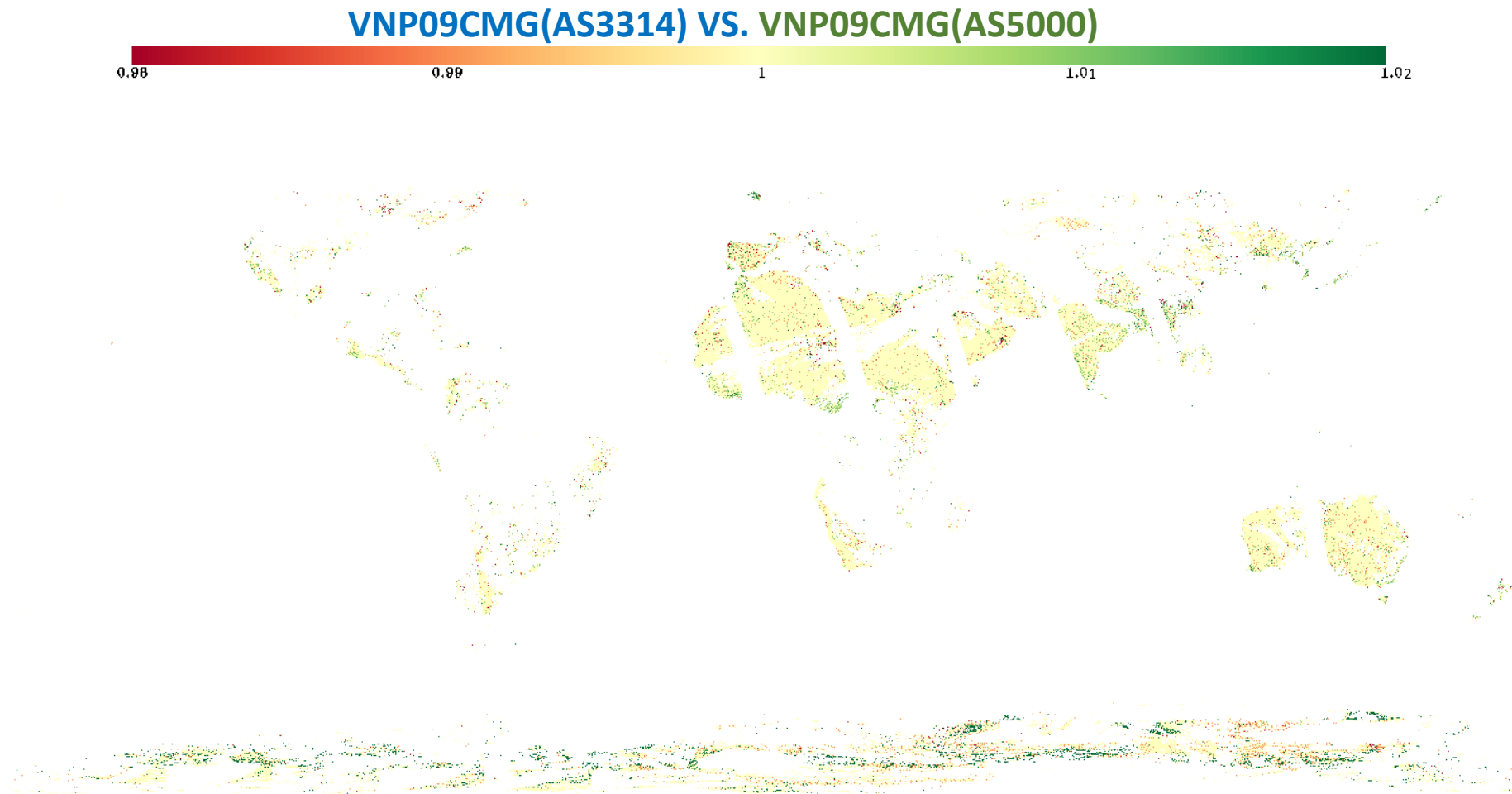


Ratio 2019001 M3

VNP09CMG(AS3314) VS. MYD09CMG(AS6)

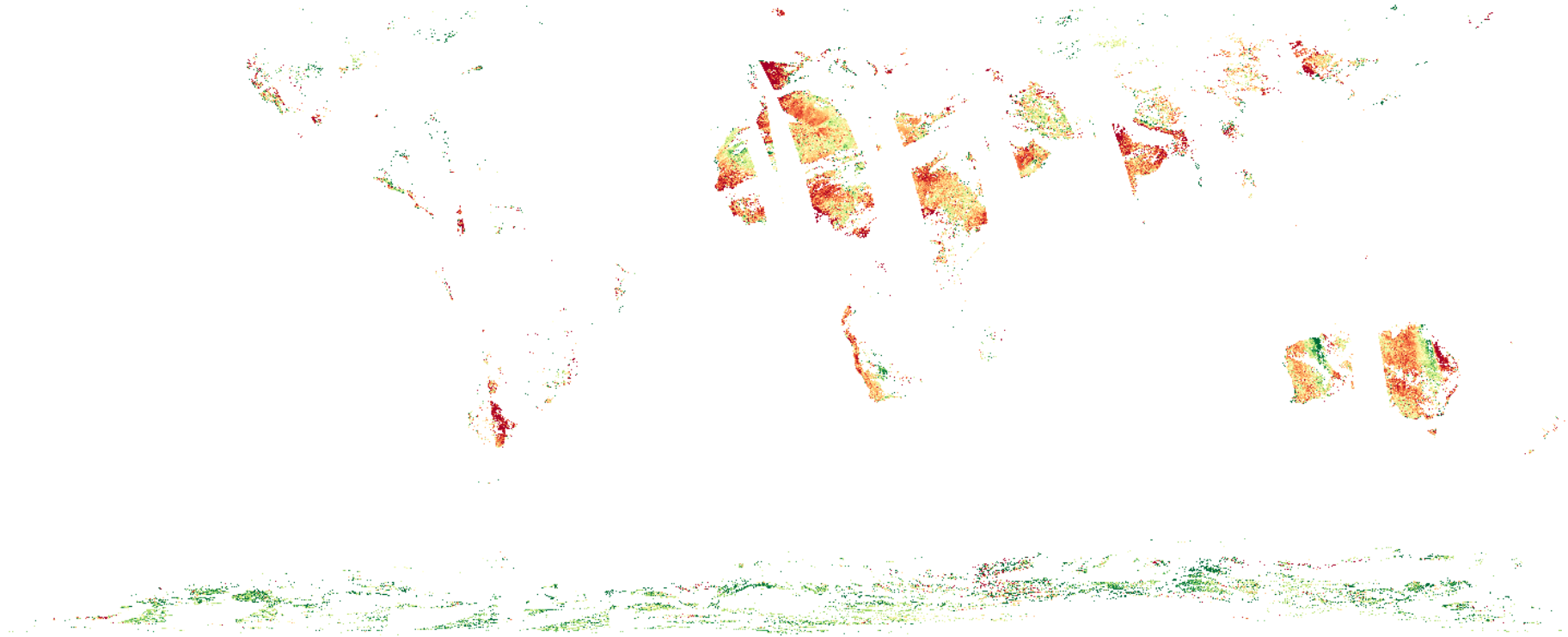
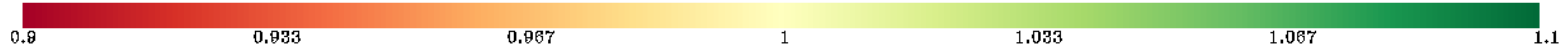


Ratio 2019001 M4



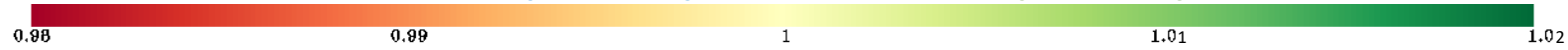
Ratio 2019001 M4

VNP09CMG(AS3314) VS. MYD09CMG(AS6)



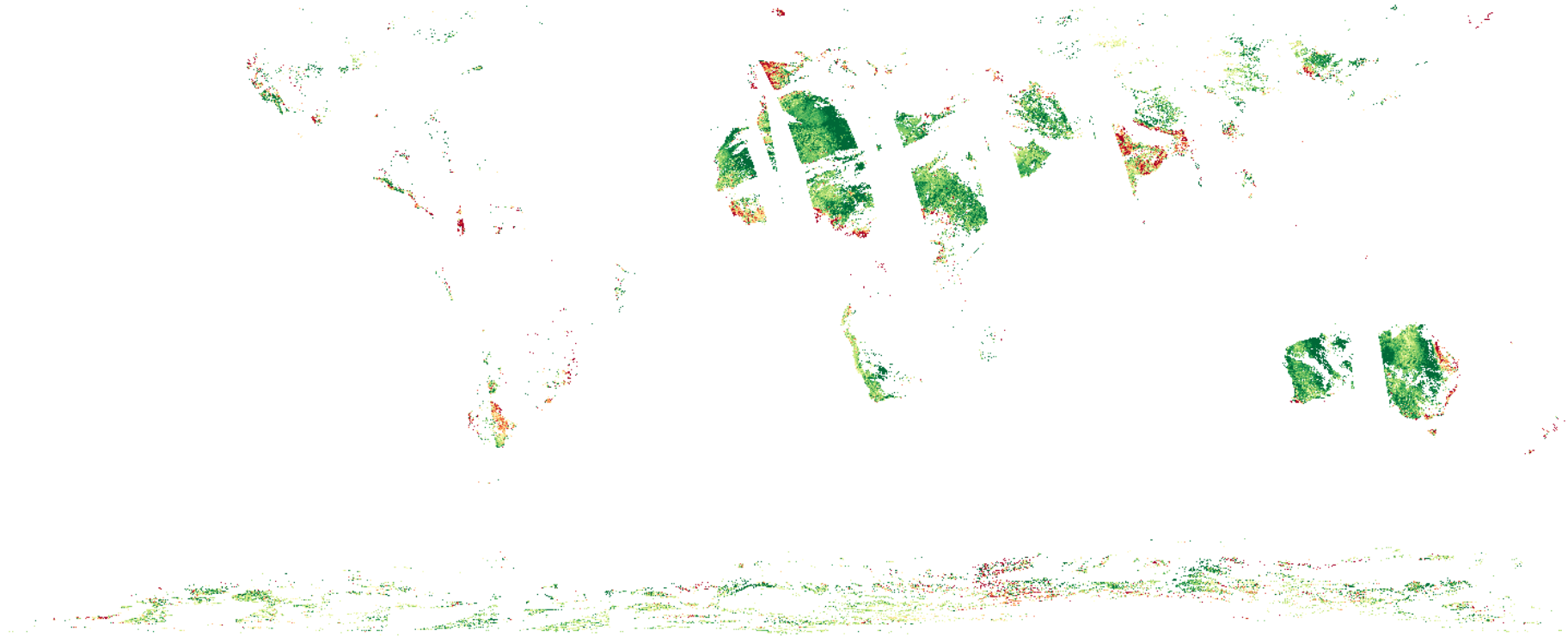
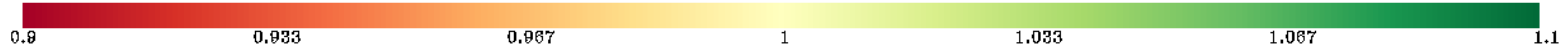
Ratio 2019001 M5

VNP09CMG(AS3314) VS. VNP09CMG(AS5000)



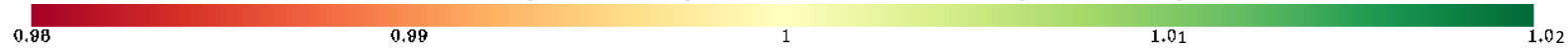
Ratio 2019001 M5

VNP09CMG(AS3314) VS. MYD09CMG(AS6)



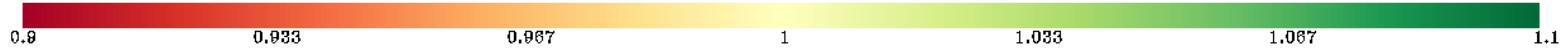
Ratio 2019001 M7

VNP09CMG(AS3314) VS. VNP09CMG(AS5000)

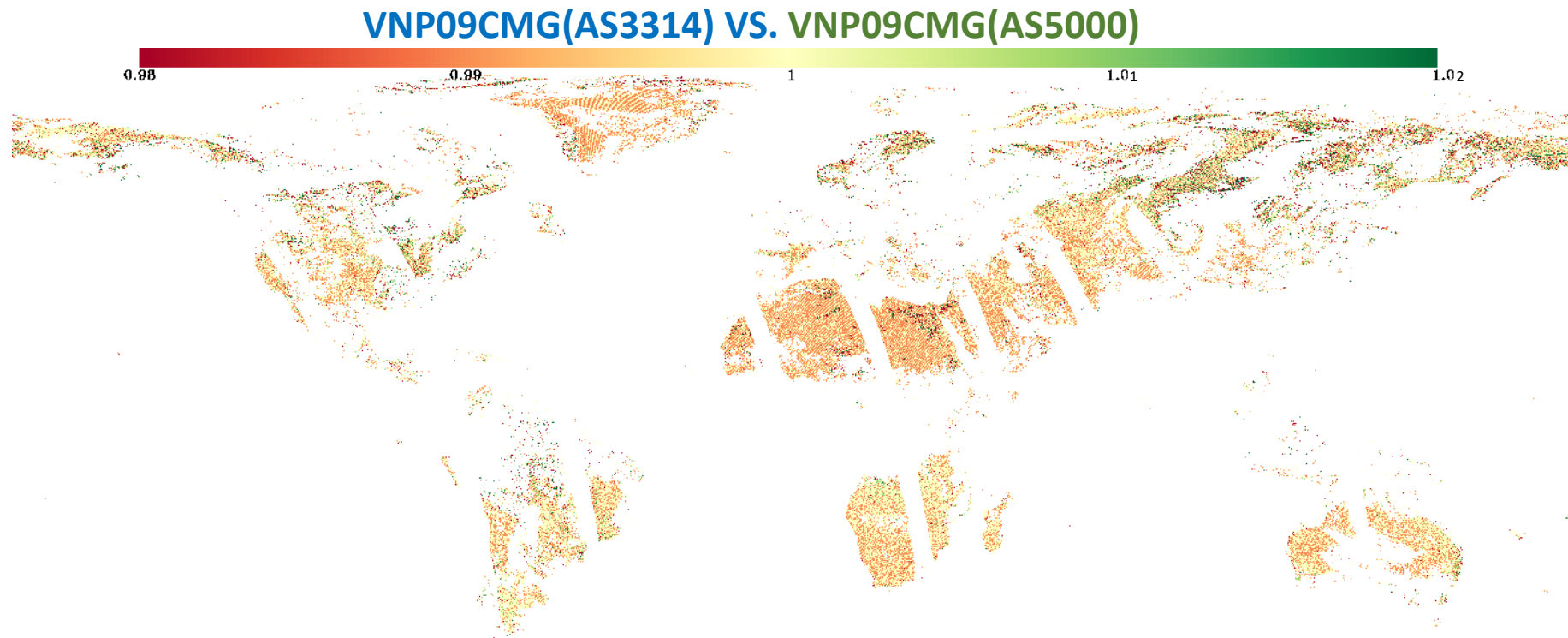


Ratio 2019001 M7

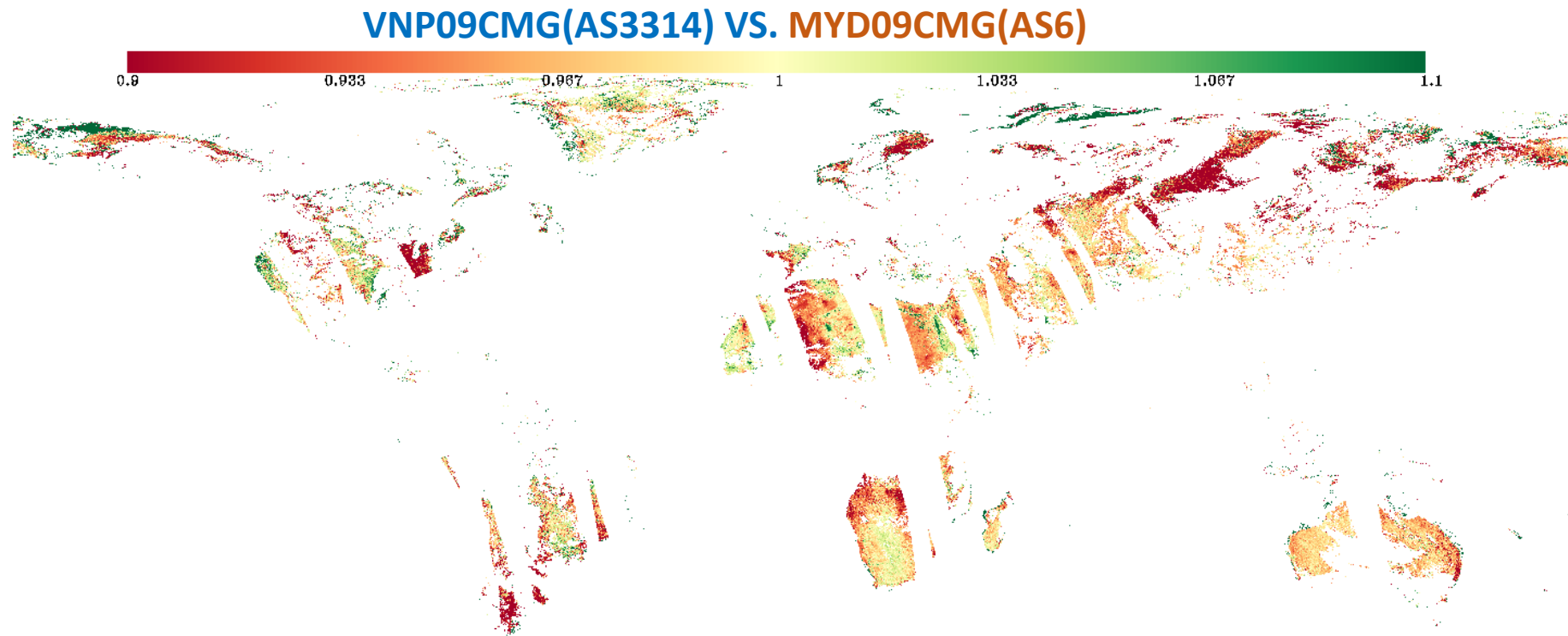
VNP09CMG(AS3314) VS. MYD09CMG(AS6)



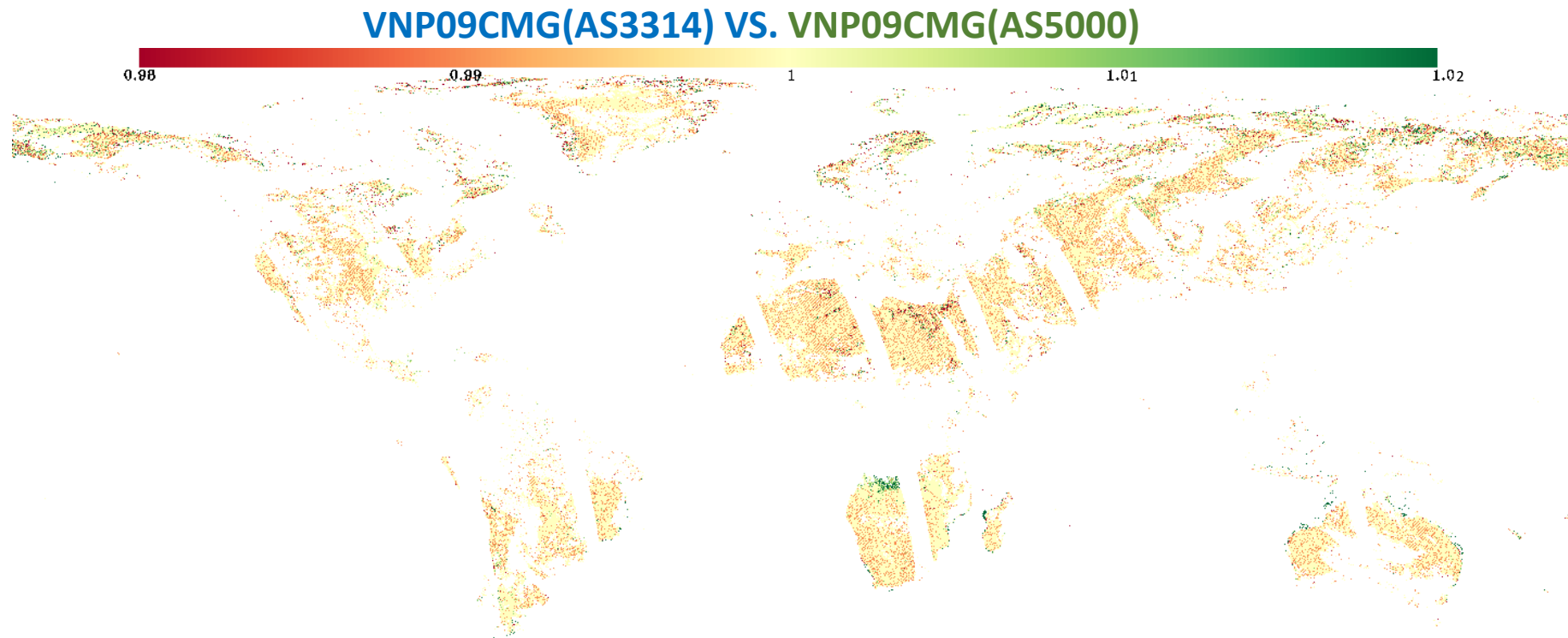
Ratio 2019193 I1



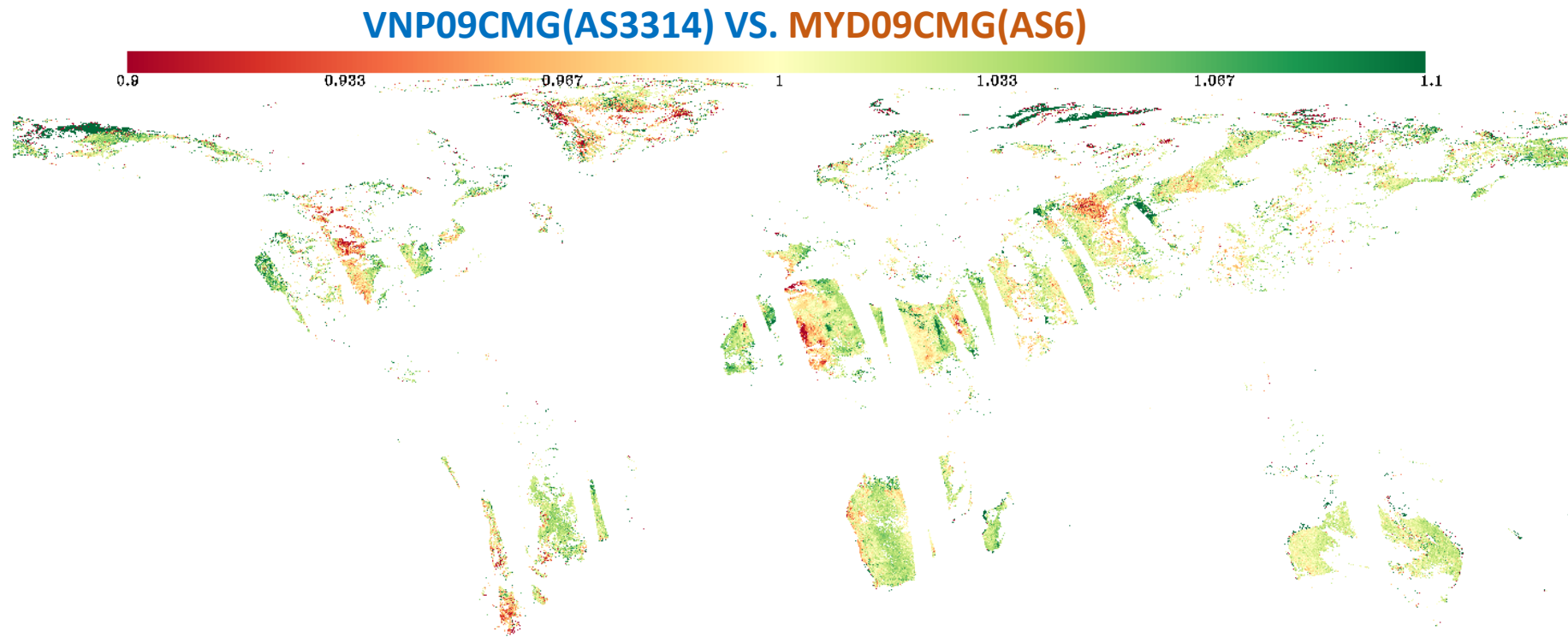
Ratio 2019193 I1



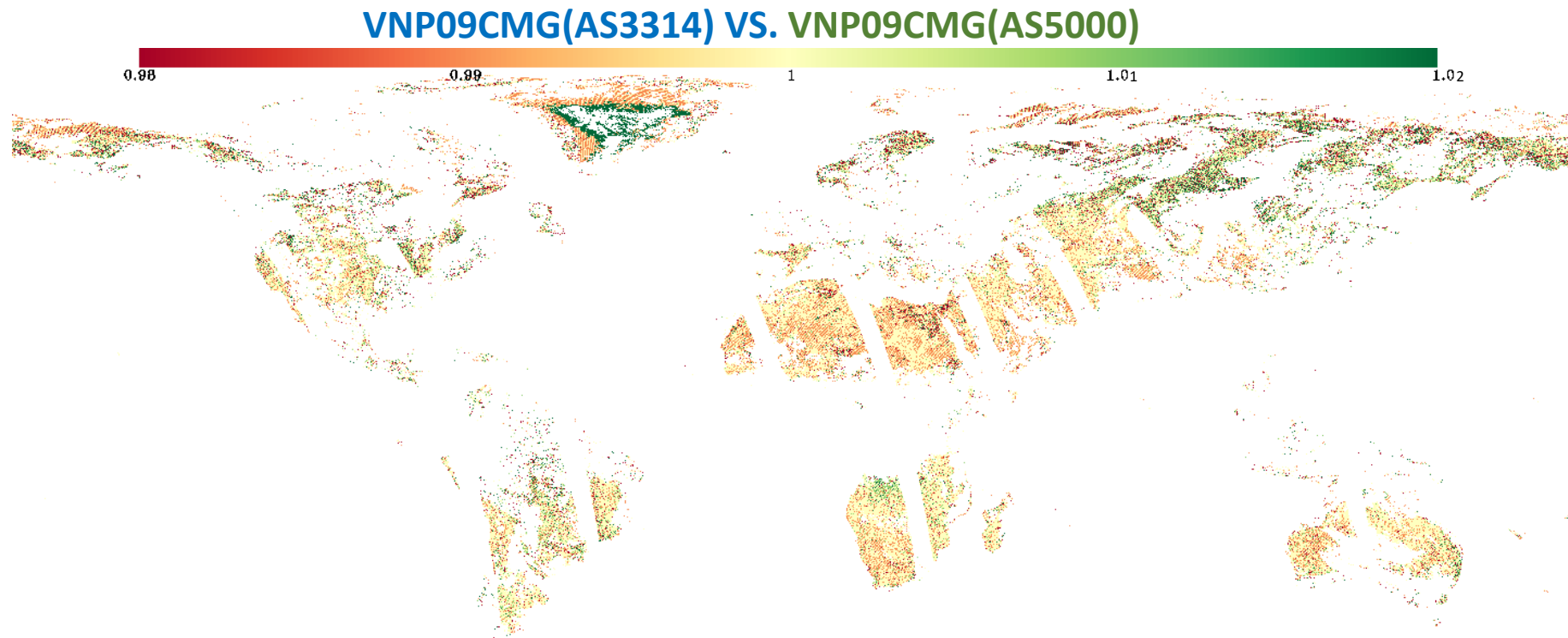
Ratio 2019193 I2



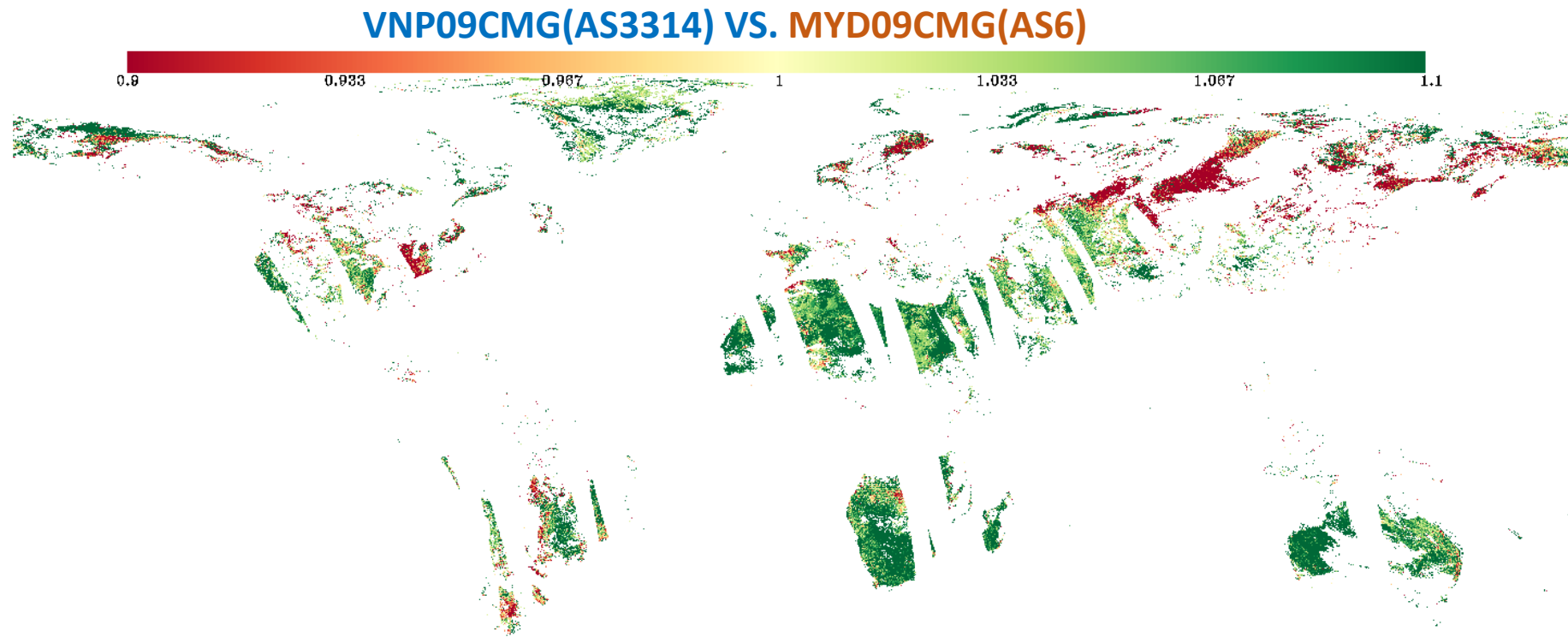
Ratio 2019193 I2



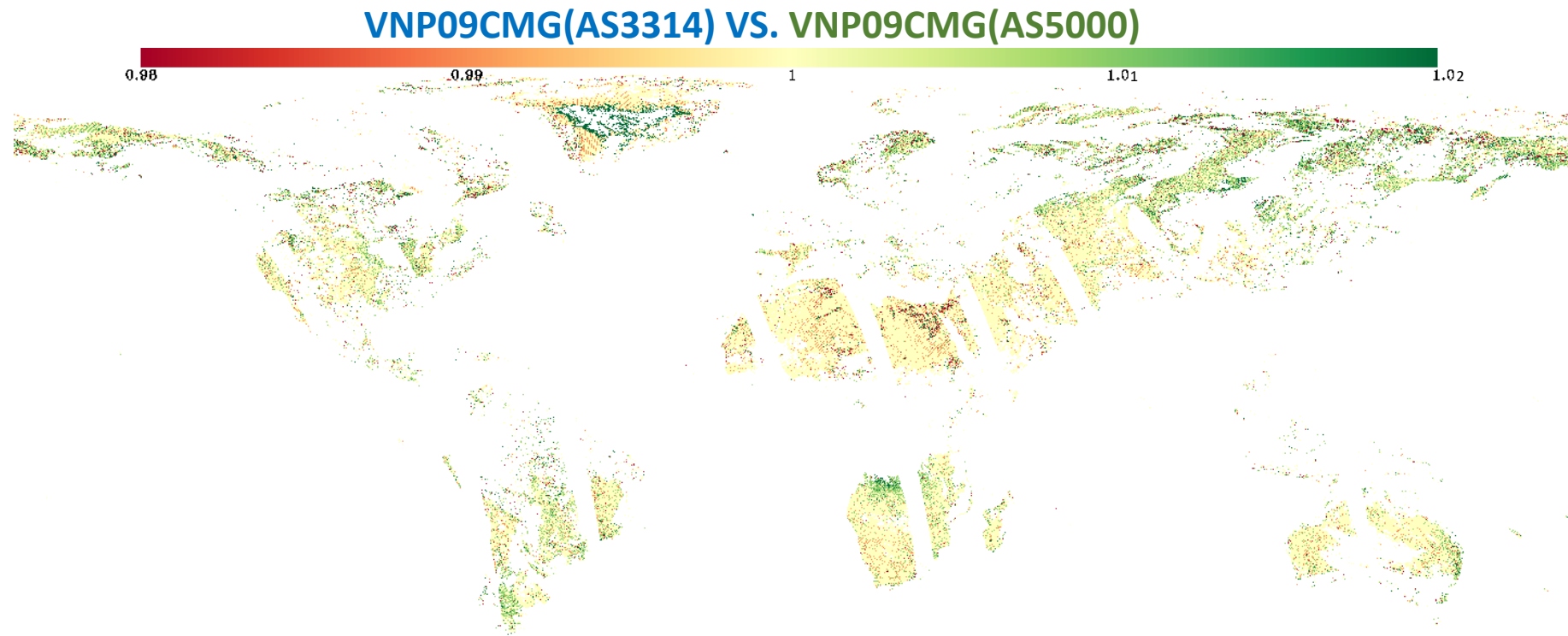
Ratio 2019193 M3



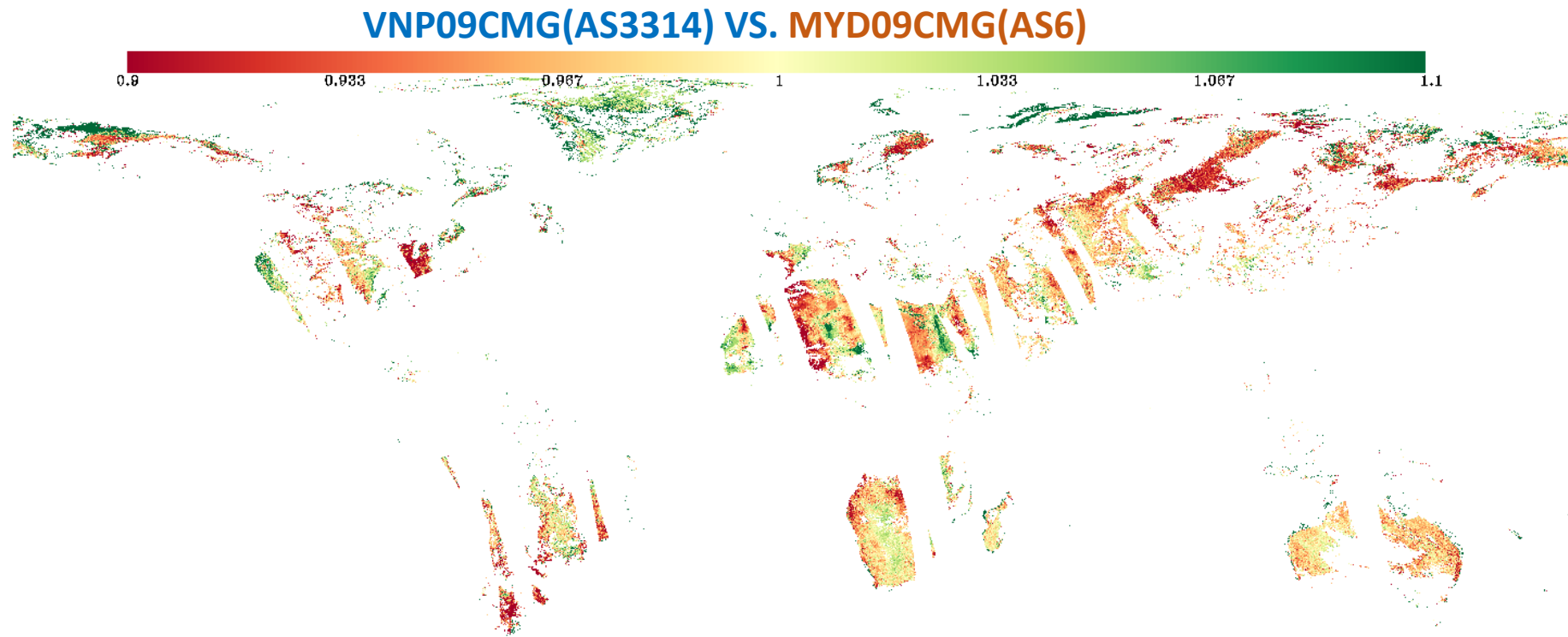
Ratio 2019193 M3



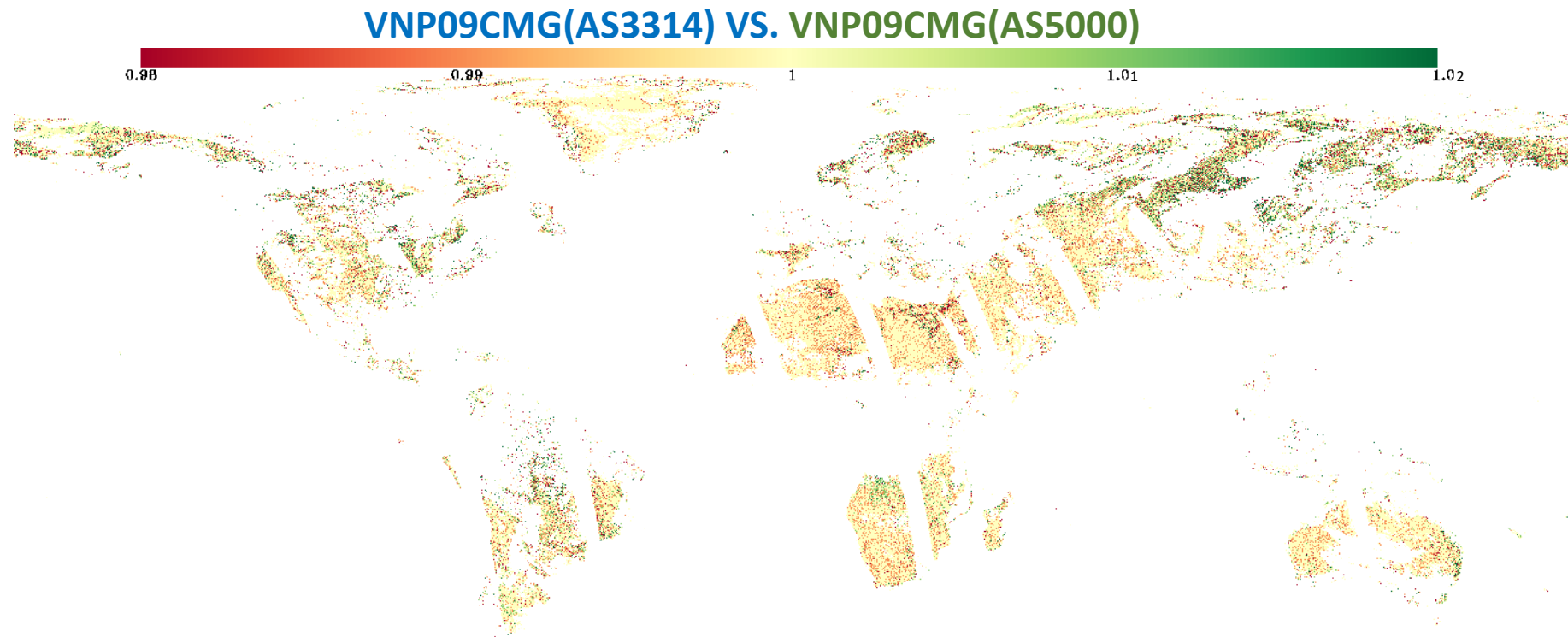
Ratio 2019193 M4



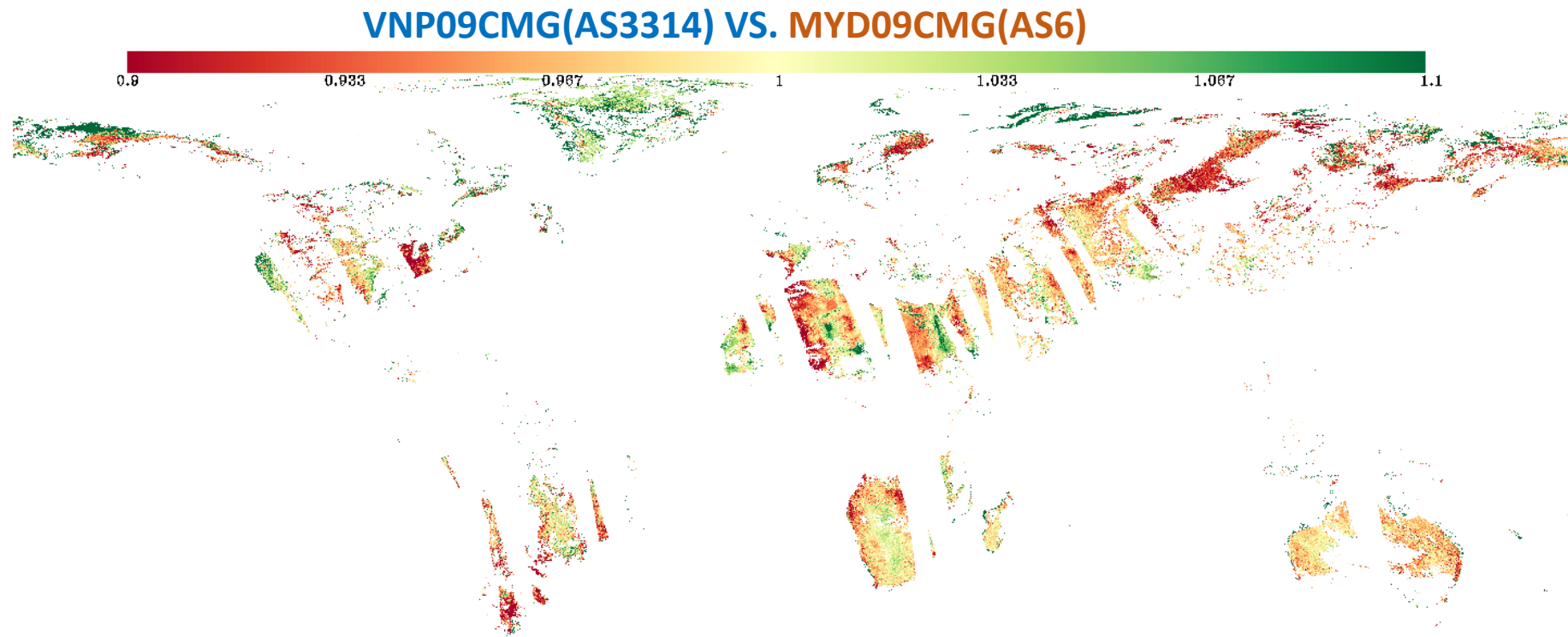
Ratio 2019193 M4



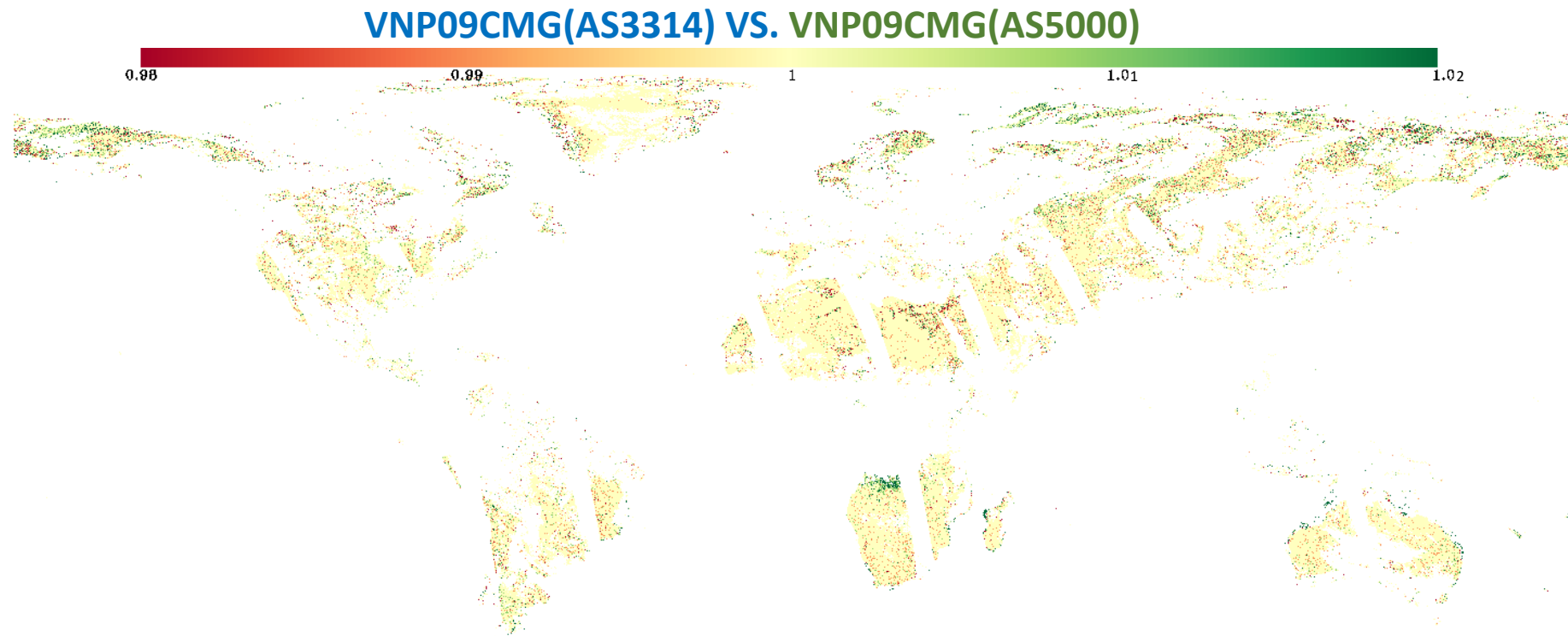
Ratio 2019193 M5



Ratio 2019193 M5



Ratio 2019193 M7



Ratio 2019193 M7

